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AN

ESSAY

CONCERNING

Human Understanding;

WITH

Thoughts on the Conduct of the Understanding.

BY JOHN LOCKE, ESQ.

COLLATED WITH DESMAIZEAUX'S EDITION.

To which is prefixed,

THE LIFE OF THE AUTHOR.

IN THREE VOLUMES.

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BOOK IV.—CHAP. I.

OF KNOWLEDGE IN GENERAL.

§ 1. *Our Knowledge converſant about our* Ideas.

SINCE the *mind*, in all its thoughts and reaſonings, hath no other immediate object but its own *ideas*, which it alone does or can contemplate, it is evident, that our knowledge is only converſant about them.

§ 2. *Knowledge is the Perception of the Agreement or Diſagreement of two* Ideas.

KNOWLEDGE then ſeems to me to be nothing but *the perception of the connection and agreement, or diſagreement and repugnancy of any of our Ideas*. In this alone it conſiſts. Where this perception is, there is knowledge; and where it is not, there, though we may fancy, gueſs, or believe, yet we always come ſhort of knowledge. For when we know that *white is not black*, what do we elſe but perceive that theſe two *ideas* do not agree? when we poſſeſs ourſelves with the utmoſt ſecurity of the demonſtration, that *the three angles of a triangle are equal to two right ones*, what do we more but perceive, that equality to two right ones, does neceſſarily agree to, and is inſeparable from the three angles of a triangle?

§ 3. *This Agreement fourfold.*

BUT to underſtand a little more diſtinctly, wherein this agreement or diſagreement conſiſts, I think we may reduce it all to theſe four ſorts;

1. *Identity*, or *diverſity*.
2. *Relation*.
3. *Co-exiſtence*, or *neceſſary connection*.
4. *Real exiſtence*.

§ 4. 1. *Of Identity or Diverſity.*

First, As to the firſt ſort of agreement or diſagreement, *viz. identity* or *diverſity*, It is the firſt act of the mind, when it has any ſentiments or *ideas* at all, to perceive its *ideas;* and ſo far as it perceives them, to know each what it is, and thereby alſo to perceive their difference, and that one is not another. This is ſo abſolutely neceſſary, that without it there could be no knowledge, no reaſoning, no imagination, no diſtinct thoughts at all. By this the mind clearly and infallibly perceives each *idea* to agree with itſelf, and to be what it is; and all diſtinct *ideas* to diſagree, *i. e.* the one not to be the other: and this it does without pains, labour or deduction, but at firſt view, by its natural power of perception and diſtinction. And though men of art have reduced this into thoſe general rules, *What is, is; and it is impoſſible for the ſame thing to be, and not to be;* for ready application in all caſes, wherein there may be occaſion to reflect on it; yet it is certain, that the firſt exerciſe of this faculty is about particular *ideas*. A man infallibly knows, as ſoon as ever he has them in his mind, that the *ideas* he calls *white* and *round*, are the very *ideas* they are, and that they are not other *ideas* which he calls *red* or *ſquare:* Nor can any maxim or propoſition in the world make him know it clearer or ſurer than he did before, and without any ſuch general rule. This then is the firſt agreement or diſagreement, which the mind perceives in its *ideas;* which it always perceives at firſt ſight: and if there ever happen any doubt about it, it will always be found to be about the names, and not the *ideas* themſelves, whoſe identity and diverſity will always be perceived, as ſoon and as clearly as the *ideas* themſelves are, nor can it poſſibly be otherwiſe.

§ 5. 2. *Relative.*

Secondly, The next sort of agreement, or disagreement, the mind perceives in any of its *ideas*, may, I think, be called *relative*, and is nothing but *the perception of the relation between any two ideas*, of what kind soever, whether substances, modes, or any other. For since all distinct *ideas* must eternally be known not to be the same, and so be universally and constantly denied one of another, there could be no room for any positive knowledge at all, if we could not perceive any relation between our *ideas*, and find out the agreement or disagreement they have one with another, in several ways the mind takes of comparing them.

§ 6. 3. *Of Co-existence.*

Thirdly, The third sort of agreement, or disagreement, to be found in our *ideas*, which the perception of the mind is employed about, is *co-existence*, or *non-co-existence* in the same subject; and this belongs particularly to substances. Thus, when we pronounce concerning *gold* that it is fixed, our knowledge of this truth amounts to no more but this, that fixedness, or a power to remain in the fire unconsumed, is an *idea* that always accompanies and is joined with that particular sort of yellowness, weight, fusibility, malleableness, and solubility in *aqua regia*, which make our complex *idea*, signified by the word *gold*.

§ 7. 4. *Of real Existence.*

Fourthly, The fourth and last sort is that of *actual real existence* agreeing to any *idea*. Within these four sorts of agreement or disagreement, is, I suppose, contained all the knowledge we have, or are capable of: For all the inquiries that we can make concerning any of our *ideas*, all that we know or can affirm concerning any of them, is, that it is, or is not, the same with some other; that it does, or does not, always co-exist with some other *idea* in the same subject; that it has this or that relation to some other *idea*; or that it has a real existence without the mind. Thus *blue is not yellow*, is of identity: *Two triangles upon equal bases between*

two parallels are equal, is of relation: *Iron is ſuſceptible of magnetical impreſſions* is of co-exiſtence: *God is*, is of real exiſtence. Though identity and co-exiſtence are truly nothing but relations, yet they are ſo peculiar ways of agreement or diſagreement of our *ideas*, that they deſerve well to be conſidered as diſtinct heads, and not under relation in general; ſince they are ſo different grounds of affirmation and negation, as will eaſily appear to any one, who will but reflect on what is ſaid in ſeveral places of this eſſay. I ſhould now proceed to examine the ſeveral degrees of our knowledge, but that it is neceſſary firſt to conſider the different acceptations of the word *knowledge*.

§ 8. *Knowledge actual or habitual.*

THERE are ſeveral ways wherein the mind is poſſeſſed of truth, each of which is called *knowledge*.

1. There is *actual knowledge*, which is the preſent view the mind has of the agreement or diſagreement of any of its *ideas*, or of the relation they have one to another.

2. A man is ſaid to know any propoſition, which having been once laid before his thoughts, he evidently perceived the agreement or diſagreement of the *ideas* whereof it conſiſts; and ſo lodged it in his memory, that whenever that propoſition comes again to be reflected on, he, without doubt or heſitation, embraces the right ſide, aſſents to, and is certain of the truth of it. This, I think, one may call *habitual knowledge*: and thus a man may be ſaid to know all thoſe truths which are lodged in his memory, by a foregoing clear and full perception, whereof the mind is aſſured paſt doubt, as often as it has occaſion to reflect on them. For our finite underſtandings being able to think clearly and diſtinctly but on one thing at once, if men had no knowledge of any more than what they actually thought on, they would all be very ignorant; and he that knew moſt would know but one truth, that being all he was able to think on at one time.

§ 9. *Habitual Knowledge twofold.*

Of habitual knowledge, there are also, vulgarly speaking, two degrees:

First, The one is of *such truths laid up in the memory, as whenever they occur to the mind, it actually perceives the relation is between those* ideas. And this is in all those truths, whereof we have an *intuitive knowledge*; where the *ideas* themselves, by an immediate view, discover their agreement or disagreement one with another.

Secondly, The other is of *such truths, whereof the mind having been convinced, it retains the memory of the conviction without the proofs.* Thus a man that remembers certainly that he once perceived the demonstration, that the three angles of a triangle are equal to two right ones, is certain that he knows it, because he cannot doubt of the truth of it. In his adherence to a truth, where the demonstration by which it was at first known is forgot, though a man may be thought rather to believe his memory than really to know; and this way of entertaining a truth seemed formerly to me like something between opinion and knowledge; a sort of assurance which exceeds bare belief, for that relies on the testimony of another: yet upon a due examination I find it comes not short of perfect certainty, and is in effect true knowledge. That which is apt to mislead our first thoughts into a mistake in this matter, is, that the agreement or disagreement of the *ideas* in this case is not perceived, as it was at first, by an actual view of all the intermediate *ideas*, whereby the agreement or disagreement of those in the proposition was at first perceived; but by other intermediate *ideas*, that show the agreement or disagreement of the *ideas* contained in the proposition whose certainty we remember. For example, in this proposition, that the three angles of a triangle are equal to two right ones, one who has seen and clearly perceived the demonstration of this truth, knows it to be true, when that demonstration is gone out of his mind; so that at present it is not

actually in view, and possibly cannot be recollected: but he knows it in a different way from what he did before. The agreement of the two *ideas* joined in that proposition is perceived, but it is by the intervention of other *ideas* than those which at first produced that perception. He remembers, *i. e.* he knows (for remembrance is but the reviving of some past knowledge) that he was once certain of the truth of this proposition, that the three angles of a triangle are equal to two right ones. The immutability of the same relations between the same immutable things, is now the *idea* that shows him, that if the three angles of a triangle were once equal to two right ones, they will always be equal to two right ones. And hence he comes to be certain, that what was once true in the case, is always true; what *ideas* once agreed, will always agree; and consequently what he once knew to be true, he will always know to be true, as long as he can remember that he once knew it. Upon this ground it is, that particular demonstrations in mathematics afford general knowledge. If then the perception that the same *ideas* will eternally have the same habitudes and relations, be not a sufficient ground of knowledge, there could be no knowledge of general propositions in mathematics; for no mathematical demonstration would be any other than particular: and when a man had demonstrated any proposition concerning one triangle or circle, his knowledge would not reach beyond that particular diagram. If he would extend it farther, he must renew his demonstration in another instance, before he could know it to be true in another like triangle, and so on: by which means one could never come to the knowledge of any general propositions. Nobody, I think, can deny that Mr. Newton certainly knows any proposition, that he now at any time reads in his book, to be true; though he has not in actual view that admirable chain of intermediate *ideas*, whereby he at first discovered it to be true. Such a memory as that, able to retain such a train of particulars, may

be well thought beyond the reach of human faculties; when the very diſcovery, perception, and laying together that wonderful connection of *ideas*, is found to ſurpaſs moſt readers comprehenſion. But yet it is evident, the author himſelf knows the propoſition to be true, remembering he once ſaw the connection of thoſe *ideas*, as certainly as he knows ſuch a man wounded another, remembering that he ſaw him run him through. But becauſe the memory is not always ſo clear as actual perception, and does in all men more or leſs decay in length of time, this amongſt other differences is one, which ſhows that *demonſtrative knowledge* is much more imperfect than *intuitive*, as we ſhall ſee in the following chapter.

CHAP. II.

OF THE DEGREES OF OUR KNOWLEDGE.

§ 1. *Intuitive.*

ALL our knowledge conſiſting, as I have ſaid, in the view the mind has of its own *ideas*, which is the utmoſt light and greateſt certainty we with our faculties, and in our way of knowledge, are capable of, it may not be amiſs to conſider a little the degrees of its evidence. The different clearneſs of our knowledge ſeems to me to lie in the different way of perception the mind has of the agreement or diſagreement of any of its *ideas*. For if we will reflect on our own ways of thinking, we ſhall find that ſometimes the mind perceives the agreement or diſagreement of two *ideas* immediately by themſelves, without the intervention of any other: and this, I think, we may call *intuitive knowledge*. For in this, the mind is at no pains of proving or examining, but perceives the truth, as the eye doth light, only by being directed toward it. Thus the mind perceives, that *white* is not *black*, that a *circle* is not a *triangle*, that *three* are more than *two*, and equal to *one* and *two*. Such kind of truths the mind perceives at the firſt ſight of the *ideas* together, by bare *intuition*, without the inter-

vention of any other *idea*; and this kind of knowledge is the cleareſt and moſt certain that human frailty is capable of. This part of knowledge is irreſiſtible, and, like bright ſun-ſhine, forces itſelf immediately to be perceived, as ſoon as ever the mind turns its view that way; and leaves no room for heſitation, doubt, or examination, but the mind is preſently filled with the clear light of it. It is on this *intuition* that depends all the certainty and evidence of all our knowledge; which certainty every one finds to be ſo great, that he cannot imagine, and therefore not require a greater: for a man cannot conceive himſelf capable of a greater certainty, than to know that any *idea* in his mind is ſuch as he perceives it to be; and that two *ideas*, wherein he perceives a difference, are different, and not preciſely the ſame. He that demands a greater certainty than this, demands he knows not what, and ſhows only that he has a mind to be a ſceptic, without being able to be ſo. Certainty depends ſo wholly on this intuition, that in the next degree of *knowledge*, which I call *demonſtrative*, this intuition is neceſſary in all the connections of the intermediate *ideas*, without which we cannot attain knowledge and certainty.

§ 2. *Demonſtrative.*

The next degree of knowledge is, where the mind perceives the agreement or diſagreement of any *ideas*, but not immediately. Though wherever the mind perceives the agreement or diſagreement of any of its *ideas*, there be certain knowledge, yet it does not always happen, that the mind ſees that agreement or diſagreement which there is between them, even where it is diſcoverable; and in that caſe remains in ignorance, and at moſt gets no farther than a probable conjecture. The reaſon why the mind cannot always perceive preſently the agreement or diſagreement of two *ideas*, is, becauſe thoſe *ideas*, concerning whoſe agreement or diſagreement the inquiry is made, cannot by the mind be ſo put together as to ſhow it. In this caſe then, when the mind cannot ſo bring its *ideas* to-

gether, as by their immediate compariſon, and as it were juxta-poſition or application one to another, to perceive their agreement or diſagreement, it is fain, by the intervention of other *ideas* (one or more, as it happens) to diſcover the agreement or diſagreement which it ſearches; and this is that which we call *reaſoning*. Thus the mind being willing to know the agreement or diſagreement in bigneſs, between the three angles of a triangle and two right ones, cannot by an immediate view and comparing them do it; becauſe the three angles of a triangle cannot be brought at once, and be compared with any one or two angles; and ſo of this the mind has no immediate, no intuitive knowledge. In this caſe the mind is fain to find out ſome other angles, to which the three angles of a triangle have an equality; and finding thoſe equal to two right ones, comes to know their equality to two right ones.

§ 3. *Depends on Proofs.*

THOSE intervening *ideas* which ſerve to ſhow the agreement of any two others, are called *proofs;* and where the agreement or diſagreement is by this means plainly and clearly perceived, it is called *demonſtration*, it being *ſhown* to the underſtanding, and the mind made ſee that it is ſo. A quickneſs in the mind to find out theſe intermediate *ideas* (that ſhall diſcover the agreement or diſagreement of any other) and to apply them right, is, I ſuppoſe, that which is called *ſagacity*.

§ 4. *But not ſo eaſy.*

THIS knowledge by intervening proofs, though it be certain, yet the evidence of it is *not* altogether *ſo clear* and bright, nor the aſſent ſo ready, as in *intuitive* knowledge. For though in *demonſtration*, the mind does at laſt perceive the agreement or diſagreement of the *ideas* it conſiders, yet it is not without pains and attention: there muſt be more than one tranſient view to find it. A ſteady application and purſuit is required to this diſcovery; and there muſt be a progreſſion by ſteps and degrees, before the mind can in this

way arrive at certainty, and come to perceive the agreement or repugnancy between two *ideas* that need proofs and the use of reason to show it.

§ 5. *Not without precedent Doubt.*

ANOTHER difference between intuitive and demonstrative knowledge, is, that though in the latter all doubt be removed, when by the intervention of the intermediate *ideas* the agreement or disagreement is perceived; yet before the demonstration there was a doubt, which in intuitive knowledge cannot happen to the mind, that has its faculty of perception left to a degree capable of distinct *ideas*, no more than it can be a doubt to the eye (that can distinctly see white and black) whether this ink and this paper be all of a colour. If there be sight in the eyes, it will at first glimpse, without hesitation perceive the words printed on this paper different from the colour of the paper; and so if the mind have the faculty of distinct perceptions, it will perceive the agreement or disagreement of those *ideas* that produce intuitive knowledge. If the eyes have lost the faculty of seeing, or the mind of perceiving, we in vain inquire after the quickness of sight in one, or clearness of perception in the other.

§ 6. *Not so clear.*

IT is true, the perception produced by *demonstration* is also very clear, yet it is often with a great abatement of that evident lustre and full assurance, that always accompany that which I call *intuitive;* like a face reflected by several mirrors one to another, where, as long as it retains the similitude and agreement with the object, it produces a knowledge; but it is still in every successive reflection with a lessening of that perfect clearness and distinctness, which is in the first, till at last, after many removes, it has a great mixture of dimness, and is not at first sight so knowable, especially to weak eyes. Thus it is with knowledge, made out by a long train of proofs.

§ 7. *Each step must have intuitive Evidence.*

Now, *in every step reason makes in demonstrative knowledge, there is an intuitive knowledge* of that agree-

ment or disagreement it seeks with the next intermediate *idea*, which it uses as a proof; for if it were not so, that yet would need a proof; since without the perception of such agreement or disagreement, there is no knowledge produced. If it be perceived by itself, it is intuitive knowledge; if it cannot be perceived by itself, there is need of some intervening *idea*, as a common measure to show their agreement or disagreement: By which it is plain that every step in reasoning that produces knowledge, has intuitive certainty; which when the mind perceives, there is no more required, but to remember it to make the agreement or disagreement of the *ideas*, concerning which we inquire, visible and certain. So that to make any thing a *demonstration*, it is necessary to perceive the immediate agreement of the intervening *ideas*, whereby the agreement or disagreement of the two *ideas* under examination (whereof the one is always the first, and the other the last in the account) is found. This intuitive perception of the agreement or disagreement of the intermediate *ideas*, in each step and progression of the *demonstration*, must also be carried exactly in the mind, and a man must be sure that no part is left out; which, because in long deductions, and the use of many proofs, the memory does not always so readily and exactly retain; therefore it comes to pass, that this is more imperfect than intuitive knowledge, and men embrace often falsehood for demonstrations.

§ 8. *Hence the mistake, Ex præcognitis et præconcessis.* The necessity of this intuitive knowledge, in each step of scientifical or demonstrative reasoning, gave occasion, I imagine, to that *mistaken axiom, that all reasoning was ex præcognitis et præconcessis*; which how far it is mistaken, I shall have occasion to show more at large, when I come to consider propositions, and particularly those propositions which are called maxims; and to show that it is by a mistake, that they are supposed to be the foundation of all our knowledge and reasonings.

§ 9. *Demonſtration not limited to Quantity.*

It has been generally taken for granted, that mathematics alone are capable of demonſtrative certainty; but to have ſuch an agreement or diſagreement as may intuitively be perceived, being, as I imagine, not the privilege of the *ideas* of *number*, *extenſion* and *figure* alone; it may poſſibly be the want of due method and application in us, and not of ſufficient evidence in things, that demonſtration has been thought to have ſo little to do in other parts of knowledge, and been ſcarce ſo much as aimed at by any but mathematicians. For whatever *ideas* we have, wherein the mind can perceive the immediate agreement or diſagreement that is between them, there the mind is capable of intuitive knowledge; and where it can perceive the agreement or diſagreement of any two *ideas*, by an intuitive perception of the agreement or diſagreement they have with any intermediate *ideas*, there the mind is capable of demonſtration, which is not limited to *ideas* of extenſion, figure, number, and their modes.

§ 10. *Why it has been ſo thought.*

The reaſon why it has been generally ſought for, and ſuppoſed to be only in thoſe, I imagine has been not only the general uſefulneſs of thoſe ſciences, but becauſe, in comparing their equality or exceſs, the modes of numbers have every the leaſt difference very clear and perceivable; and though in extenſion, every the leaſt exceſs is not ſo perceptible, yet the mind has found out ways to examine and diſcover demonſtratively the juſt equality of two angles, or extenſions, or figures; and both theſe, *i. e.* numbers and figures, can be ſet down by viſible and laſting marks, wherein the *ideas* under conſideration are perfectly determined; which for the moſt part they are not, where they are marked only by names and words.

§ 11.

But in other ſimple *ideas*, whoſe modes and differences are made and counted by degrees, and not quantity, we have not ſo nice and accurate a diſtinction of

their differences, as to perceive or find ways to measure their just equality, or the least differences. For those other simple *ideas*, being appearances or sensations, produced in us by the size, figure, number and motion of minute corpuscles singly insensible, their different degrees also depend upon the variation of some, or all of those causes; which since it cannot be observed by us in particles of matter, whereof each is too subtle to be perceived, it is impossible for us to have any exact measures of the different degrees of these simple *ideas*. For supposing the sensation of *idea* we name *whiteness* be produced in us by a certain number of globules, which having a verticity about their own centres, strike upon the *retina* of the eye, with a certain degree of rotation, as well as progressive swiftness, it will hence easily follow, that the more the superficial parts of any body are so ordered, as to reflect the greater number of globules of light, and to give them that proper rotation which is fit to produce this sensation of white in us, the more white will that body appear, that from an equal space sends to the *retina* the greater number of such corpuscles, with that peculiar sort of motion. I do not say, that the nature of light consists in very small round globules, nor of whiteness in such a texture of parts, as gives a certain rotation to these globules when it reflects them; for I am not now treating physically of light or colours: But this, I think, I may say, that I cannot (and I would be glad any one would make intelligible that he did) conceive how bodies without us can any ways affect our senses, but by the immediate contact of the sensible bodies themselves, as in tasting and feeling, or the impulse of some insensible particles coming from them, as in seeing, hearing, and smelling; by the different impulse of which parts, caused by their different size, figure and motion, the variety of sensations is produced in us.

§ 12.

Whether then they be globules, or no; or whether they have a verticity about their own centres, that

produce the *idea* of *whiteneſs* in us, this is certain, that the more particles of light are reflected from a body, fitted to give them that peculiar motion which produces the ſenſation of whiteneſs in us, and poſſibly too, the quicker that peculiar motion is, the whiter does the body appear, from which the greater number are reflected, as is evident in the ſame piece of paper put in the ſun-beams, in the ſhade, and in a dark hole; in each of which it will produce in us the *idea* of whiteneſs in far different degrees.

§ 13. *Why it has been ſo thought.*

Not knowing therefore what number of particles, nor what motion of them is fit to produce any preciſe degree of *whiteneſs*, we cannot demonſtrate the certain equality of any two degrees of *whiteneſs*, becauſe we have no certain ſtandard to meaſure them by, nor means to diſtinguiſh every the leaſt real difference, the only help we have being from our ſenſes, which in this point fail us. But where the difference is ſo great, as to produce in the mind clearly diſtinct *ideas*, whoſe differences can be perfectly retained, there theſe *ideas* of colours, as we ſee in different kinds, as blue and red, are as capable of demonſtration, as *ideas* of number and extenſion. What I have here ſaid of *whiteneſs* and colours, I think, holds true in all ſecondary qualities, and their modes.

§ 14. *Senſitive Knowledge of particular exiſtence.*

These two, *viz.* intuition and demonſtration, are the degrees of our knowledge; whatever comes ſhort of one of theſe, with what aſſurance ſoever embraced, is but faith, or opinion, but not knowledge, at leaſt in all general truths. There is, indeed, another *perception* of the mind, employed about *the particular exiſtence of finite beings* without us, which going beyond bare probability, and yet not reaching perfectly to either of the foregoing degrees of certainty, paſſes under the name of knowledge. There can be nothing more certain, than that the *idea* we receive from an external object is in our minds; this is intuitive knowledge. But whether there be any thing more than

barely that *idea* in our minds, whether we can thence certainly infer the existence of any thing without us, which corresponds to that *idea*, is that, whereof some men think there may be a question made; because men may have such *ideas* in their minds, when no such thing exists, no such object affects their senses. But yet here, I think, we are provided with an evidence, that puts us past doubting; for I ask any one, whether he be not invincibly conscious to himself of a different perception, when he looks on the sun by day, and thinks on it by night; when he actually tastes wormwood, or smells a rose, or only thinks on that savour or odour? We as plainly find the difference there is between any *idea* revived in our minds by our own memory, and actually coming into our minds by our senses, as we do between any two distinct *ideas*. If any one say, a dream may do the same thing, and all these *ideas* may be produced in us without any external objects, he may please to dream that I make him this answer: 1. That it is no great matter, whether I remove his scruple, or no; where all is but a dream, reasoning and arguments are of no use, truth and knowledge nothing. 2. That I believe he will allow a very manifest difference between dreaming of being in the fire, and being actually in it. But yet if he be resolved to appear so sceptical, as to maintain that what I call being actually in the fire is nothing but a dream, and that we cannot thereby certainly know, that any such thing as fire actually exists without us: I answer, that we certainly finding that pleasure or pain follows upon the application of certain objects to us, whose existence we perceive, or dream that we perceive by our senses; this certainty is as great as our happiness or misery, beyond which we have no concernment to know, or to be. So that I think, we may add to the two former sorts of *knowledge* this also, of the existence of particular external objects, by that perception and consciousness we have of the actual entrance of *ideas* from them, and allow these *three degrees of knowledge*, viz. *intuitive*, *de-*

monſtrative, and *ſenſitive;* in each of which, there are different degrees and ways of evidence and certainty.

§ 15. *Knowledge not always clear, where the* Ideas *are ſo.*

But ſince our knowledge is founded on, and employed about our *ideas* only, will it not follow from thence, that it is conformable to our *ideas;* and that where our *ideas* are clear and diſtinct, or obſcure and confuſed, our knowledge will be ſo too? To which I anſwer, No: For our knowledge conſiſting in the perception of the agreement or diſagreement of any two *ideas*, its clearneſs or obſcurity conſiſts in the clearneſs or obſcurity of that perception, and not in the clearneſs or obſcurity of the *ideas* themſelves; *v. g.* a man that has as clear *ideas* of the angles of a triangle, and of equality to two right ones, as any mathematician in the world, may yet have but a very obſcure perception of their agreement, and ſo have but a very obſcure knowledge of it. But *ideas*, which by reaſon of their obſcurity or otherwiſe, are confuſed, cannot produce any clear or diſtinct knowledge; becauſe as far as any *ideas* are confuſed, ſo far the mind cannot perceive clearly whether they agree or diſagree: Or, to expreſs the ſame thing in a way leſs apt to be miſunderſtood, he that hath not determined the *ideas* to the words he uſes, cannot make propoſitions of them, of whoſe truth he can be certain.

CHAP. III.

OF THE EXTENT OF HUMAN KNOWLEDGE.

§ 1.

KNOWLEDGE, as has been ſaid, lying in the perception of the agreement or diſagreement of any of our *ideas*, it follows from hence, that,

1. *No farther than we have* Ideas.

First, We can have *knowledge* no farther than we have *ideas*.

§ 2. 2. *No farther than we can perceive their Agreement or Disagreement.*

Secondly, That we can have no *knowledge* farther than we can have perception of that agreement or disagreement. Which perception being, 1. Either by *intuition*, or the immediate comparing any two *ideas*: or, 2. By *reason*, examining the agreement or disagreement of two *ideas*, by the intervention of some others: or, 3. By *sensation*, perceiving the existence of particular things: Hence it also follows,

§ 3. 3. *Intuitive Knowledge extends itself not to all the Relations of all our* Ideas.

Thirdly, That we cannot have an *intuitive knowledge*, that shall extend itself to all our *ideas*, and all that we would know about them, because we cannot examine and perceive all the relations they have one to another by juxta-position, or an immediate comparison one with another. Thus having the *ideas* of an obtuse, and an acute angled triangle, both drawn from equal bases, and between parallels, I can, by intuitive knowledge, perceive the one not to be the other, but cannot that way know whether they be equal or no; because their agreement or disagreement in equality can never be perceived by an immediate comparing them: The difference of figure makes their parts incapable of an exact immediate application; and therefore, there is need of some intervening quantities to measure them by, which is demonstration, or rational knowledge.

§ 4. 4. *Nor Demonstrative Knowledge.*

Fourthly, It follows also, from what is above observed, that our *rational knowledge* cannot reach to the whole extent of our *ideas*: Because between two different *ideas* we would examine, we cannot always find such *mediums*, as we can connect one to another with an intuitive knowledge, in all the parts of the deduction; and wherever that fails, we come short of knowledge and demonstration.

§ 5. 5. *Sensitive Knowledge narrower than either.*

Fifthly, *Sensitive knowledge*, reaching no farther

than the exiſtence of things actually preſent to our ſenſes, is yet much narrower than either of the former.

§ 6. 6. *Our Knowledge, therefore, narrower than our* Ideas.

From all which it is evident, that *the extent of our knowledge* comes not only ſhort of the reality of things, but even of the extent of our own *ideas*. Though our knowledge be limited to our *ideas*, and cannot exceed them either in extent or perfection; and though theſe be very narrow bounds, in reſpect of the extent of all being, and far ſhort of what we may juſtly imagine to be in ſome even created underſtandings, not tied down to the dull and narrow information is to be received from ſome few and not very acute ways of perception, ſuch as are our ſenſes; yet it would be well with us if our knowledge were but as large as our *ideas*, and there were not many doubts and inquiries concerning the *ideas* we have, whereof we are not, nor I believe ever ſhall be in this world reſolved. Nevertheleſs, I do not queſtion but that human knowledge, under the preſent circumſtances of our beings and conſtitutions, may be carried much farther than it hitherto has been, if men would ſincerely, and with freedom of mind, employ all that induſtry and labour of thought, in improving the means of diſcovering truth, which they do for the colouring or ſupport of falſehood, to maintain a ſyſtem, intereſt or party they are once engaged in. But yet after all, I think I may without injury to human perfection, be confident, that our knowledge would never reach to all we might deſire to know concerning thoſe *ideas* we have; nor be able to ſurmount all the difficulties, and reſolve all the queſtions that might ariſe concerning any of them. We have the *ideas* of a *ſquare*, a *circle*, and *equality*; and yet, perhaps, ſhall never be able to find a circle equal to a ſquare, and certainly know that it is ſo. We have the *ideas* of *matter* and *thinking*, but poſſibly ſhall never be able to know, whether any mere material being thinks, or no; it being impoſſible for

us, by the contemplation of our own *ideas*, without revelation, to discover, whether Omnipotency has not given to some systems of matter fitly disposed, a power to perceive and think, or else joined and fixed to matter so disposed, a thinking immaterial substance; it being, in respect of our notions not much more remote from our comprehension to conceive, that God can, if he pleases, superadd to matter a faculty of thinking, than that he should superadd to it another substance, with a faculty of thinking; since we know not wherein thinking consists, nor to what sort of substances the Almighty has been pleased to give that power, which cannot be in any created being, but merely by the good pleasure and bounty of the Creator. For I see no contradiction in it, that the first eternal thinking Being should, if he pleased, give to certain systems of created senseless matter, put together, as he thinks fit, some degrees of sense, perception and thought: Though, as I think, I have proved, *lib.* 4. *ch.* 10. it is no less than a contradiction to suppose matter (which is evidently in its own nature void of sense and thought) should be that eternal first thinking Being. What certainty of knowledge can any one have that some perceptions, such as, *v. g.* pleasure and pain, should not be in some bodies themselves, after a certain manner modified and moved, as well as that they should be in an immaterial substance, upon the motion of the parts of body? Body, as far as we can conceive, being able only to strike and affect body; and motion, according to the utmost reach of our *ideas*, being able to produce nothing but motion; so that when we allow it to produce pleasure or pain, or the *idea* of a colour or sound, we are fain to quit our reason, go beyond our *ideas*, and attribute it wholly to the good pleasure of our Maker. For since we must allow he has annexed effects to motion, which we can no way conceive motion able to produce, what reason have we to conclude, that he could not order them as well to be produced in a subject we cannot conceive capable of them, as well as in a subject we

cannot conceive the motion of matter can any way operate upon? I say not this, that I would any way leſſen the belief of the ſoul's immateriality: I am not here ſpeaking of probability, but knowledge; and I think not only, that it becomes the modeſty of philoſophy not to pronounce magiſterially, where we want that evidence that can produce knowledge; but alſo, that it is of uſe to us to diſcern how far our knowledge does reach: for the ſtate we are at preſent in, not being that of viſion, we muſt, in many things, content ourſelves with faith and probability; and in the preſent queſtion, about the immateriality of the ſoul, if our faculties cannot arrive at demonſtrative certainty, we need not think it ſtrange. All the great ends of morality and religion are well enough ſecured, without philoſophical proofs of the ſoul's immateriality: ſince it is evident, that he who made us at firſt begin to ſubſiſt here, ſenſible intelligent beings, and for ſeveral years continued us in ſuch a ſtate, can and will reſtore us to the like ſtate of ſenſibility in another world, and make us capable there to receive the retribution he has deſigned to men, according to their doings in this life; and therefore it is not of ſuch mighty neceſſity to determine one way or the other, as ſome over-zealous for or againſt the immateriality of the ſoul, have been forward to make the world believe, who, either on the one ſide, indulging too much their thoughts immerſed altogether in matter, can allow no exiſtence to what is not material; or who, on the other ſide, finding not *cogitation* within the natural powers of matter, examined over and over again by the utmoſt intention of mind, have the confidence to conclude, that Omnipotency itſelf cannot give perception and thought to a ſubſtance which has the modification of ſolidity. He that conſiders how hardly ſenſation is, in our thoughts, reconcileable to extended matter, or exiſtence to any thing that hath no extenſion at all, will confeſs, that he is very far from certainly knowing what his ſoul is. It is a point which ſeems to me to be put out of the reach of our

knowledge: And he who will give himself leave to consider freely, and look into the dark and intricate part of each hypothesis, will scarce find his reason able to determine him fixedly for or against the soul's materiality; since on which side soever he views it, either as an unextended substance, or as a thinking extended matter, the difficulty to conceive either, will, whilst either alone is in his thoughts, still drive him to the contrary side; an unfair way which some men take with themselves, who, because of the unconceivableness of something they find in one, throw themselves violently into the contrary hypothesis, though altogether as unintelligible to an unbiassed understanding. This serves not only to show the weakness and scantiness of our knowledge, but the insignificant triumph of such sort of arguments, which, drawn from our own views, may satisfy us that we can find no certainty on one side of the question, but do not at all thereby help us to truth by running into the opposite opinion, which, on examination, will be found clogged with equal difficulties. For what safety, what advantage to any one is it, for the avoiding the seeming absurdities, and to him unsurmountable rubs, he meets with in one opinion, to take refuge in the contrary, which is built on something altogether as inexplicable, and as far remote from his comprehension? It is past controversy, that we have in us something that thinks; our very doubts about what it is, confirm the certainty of its being, though we must content ourselves in the ignorance of what kind of *being* it is; and it is as vain to go about to be sceptical in this, as it is unreasonable in most other cases to be positive against the being of any thing, because we cannot comprehend its nature; for I would fain know what substance exists, that has not something in it which manifestly baffles our understandings. Other spirits, who see and know the nature and inward constitution of things, how much must they exceed us in knowledge? To which if we add larger comprehension, which enables them at one glance to see the connec-

tion and agreement of very many *ideas*, and readily ſupplies to them the intermediate proofs, which we by ſingle and ſlow ſteps, and long poring in the dark, hardly at laſt find out, and are often ready to forget one before we have hunted out another; we may gueſs at ſome part of the happineſs of ſuperior ranks of ſpirits, who have a quicker and more penetrating ſight, as well as a larger field of knowledge. But to return to the argument in hand; our *knowledge*, I ſay, is not only limited to the paucity and imperfections of the *ideas* we have, and which we employ it about, but even comes ſhort of that too. But how far it reaches, let us now inquire.

§ 7. *How far our Knowledge reaches.*

THE affirmations or negations we make concerning the *ideas* we have, may, as I have before intimated in general, be reduced to theſe four ſorts, *viz.* identity, co-exiſtence, relation, and real exiſtence. I ſhall examine how far our knowledge extends in each of theſe.

§ 8. 1. *Our Knowledge of Identity and Diverſity as far as our* Ideas.

FIRST, As to identity and diverſity, in this way of the agreement or diſagreement of our *ideas*, *our intuitive knowledge is as far extended as our* ideas themſelves: and there can be no *idea* in the mind, which it does not preſently, by an intuitive knowledge, perceive to be what it is, and to be different from any other.

§ 9. 2. *Of Co-exiſtence a very little way.*

SECONDLY, As to the ſecond ſort, which is the *agreement* or *diſagreement* of our *ideas in co-exiſtence;* in this, our knowledge is very ſhort, though in this conſiſts the greateſt and moſt material part of our knowledge concerning ſubſtances. For our *ideas* of the ſpecies of ſubſtances being, as I have ſhowed, nothing but certain collections of ſimple *ideas* united in one ſubject, and ſo co-exiſting together; *v. g.* our *idea* of *flame* is a body hot, luminous, and moving upward; of *gold*, a body heavy to a certain degree, yellow, malleable, and fuſible: Theſe, or ſome ſuch complex

ideas as these in mens minds, do these two names of the different substances, *flame*, and *gold*, stand for. When we would know any thing farther concerning these, or any other sort of substances, what do we inquire, but what other qualities or powers these substances have or have not? which is nothing else but to know what other simple *ideas* do or do not co-exist with those that make up that complex *idea*.

§ 10. *Because the Connection between most simple Ideas is unknown.*

This, how weighty and considerable a part soever of human science, is yet very narrow, and scarce any at all. The reason whereof is, that the simple *ideas*, whereof our complex *ideas* of substances are made up, are, for the most part, such as carry with them, in their own nature, no visible necessary connection or inconsistency with any other simple *ideas*, whose *coexistence* with them we would inform ourselves about.

§ 11. *Especially of secondary Qualities.*

The *ideas* that our complex ones of substances are made up of, and about which our knowledge concerning substances is most employed, are those of their *secondary qualities;* which depending all (as has been shown) upon the primary qualities of their minute and insensible parts, or if not upon them, upon something yet more remote from our comprehension, it is impossible we should know which have a necessary union or inconsistency one with another: For not knowing the root they spring from, not knowing what size, figure, and texture of parts they are, on which depend, and from which result those qualities which make our complex *idea* of gold, it is impossible we should know what other qualities result from, or are incompatible with the same constitution of the insensible parts of *gold;* and so consequently must always *co-exist* with that complex *idea* we have of it, or else are *inconsistent* with it.

§ 12. *Because all Connection between any secondary and primary Qualities is undiscoverable.*

Besides this ignorance of the primary qualities of the

insensible parts of bodies, on which depend all their secondary qualities, there is yet another and more incurable part of ignorance, which sets us more remote from a certain knowledge of the *co-existence* or *in-co-existence* (if I may so say) of different *ideas* in the same subject; and that is, that there is no discoverable connection between any *secondary quality, and those primary qualities* which it depends on.

§ 13.

THAT the size, figure, and motion of one body should cause a change in the size, figure, and motion of another body, is not beyond our conception: The separation of the parts of one body upon the intrusion of another; and the change from rest to motion upon impulse; these, and the like, seem to us to have some *connection* one with another. And if we knew these primary qualities of bodies, we might have reason to hope we might be able to know a great deal more of these operations of them one upon another: But our minds not being able to discover any *connection* betwixt these primary qualities of bodies, and the sensations that are produced in us by them, we can never be able to establish certain and undoubted rules of the consequences or *co-existence* of any secondary qualities, though we could discover the size, figure, or motion of those invisible parts which immediately produce them. We are so far from knowing what figure, size, or motion of parts produce a yellow colour, a sweet taste, or a sharp sound, that we can by no means conceive how any *size, figure, or motion* of any particles, can possibly produce in us the *idea* of any *colour, taste or sound* whatsoever; there is no conceivable *connection* betwixt the one and the other.

§ 14.

IN vain therefore, shall we endeavour to discover by our *ideas* (the only true way of certain and universal knowledge) what other *ideas* are to be found constantly joined with that of our complex *idea* of any substance; since we neither know the real constitution of the minute parts on which their qualities do depend,

nor, did we know them, could we discover any necessary *connection* between them and any of the *secondary qualities*, which is necessary to be done before we can certainly know their *necessary co-existence*. So that let our complex *idea* of any species of substances be what it will, we can hardly, from the simple *ideas* contained in it, certainly determine the *necessary co-existence* of any other quality whatsoever. Our knowledge in all these inquiries reaches very little farther than our experience. Indeed, some few of the primary qualities have a necessary dependence and visible connection one with another, as figure necessarily supposes extension; receiving or communicating motion by impulse supposes solidity. But though these, and perhaps some other of our *ideas* have, yet there are so *few* of them that have a *visible connection* one with another, that we can by intuition or demonstration discover the co-existence of very few of the qualities are to be found united in substances, and we are left only to the assistance of our senses, to make known to us what qualities they contain. For of all the qualities that are *co-existent* in any subject, without this dependence and evident connection of their *ideas* one with another, we cannot know certainly any two to *co-exist* any farther than experience, by our senses, informs us. Thus, though we see the yellow colour, and upon trial find the weight, malleableness, fusibility, and fixedness, that are united in a piece of gold; yet because no one of these *ideas* has any evident *dependence*, or necessary connection with the other, we cannot certainly know, that where any four of these are, the fifth will be there also, how highly probable soever it may be; because the highest probability amounts not to certainty, without which there can be no true knowledge. For this *co-existence* can be no farther known than it is perceived; and it cannot be perceived, but either in particular subjects, by the observation of our senses, or in general, by the necessary *connection* of the *ideas* themselves.

§ 15. *Of Repugnancy to co-exiſtence larger.* *As to incompatibility or repugnancy to co-exiſtence*, we may know, that any ſubject can have of each ſort of primary qualities, but one particular at once; *v. g.* each particular extenſion, figure, number of parts, motion, excludes all other of each kind. The like alſo is certain of all ſenſible *ideas* peculiar to each ſenſe; for whatever of each kind is preſent in any ſubject, excludes all other of that ſort; *v. g.* no one ſubject can have two ſmells or two colours at the ſame time. To this perhaps, will be ſaid, has not an *opal*, or an infuſion of *lignum nephriticum*, two colours at the ſame time? To which I anſwer, that theſe bodies, to eyes differently placed, may at the ſame time afford different colours: but I take liberty alſo to ſay, that to eyes differently placed, it is different parts of the object that reflect the particles of light; and therefore it is not the ſame part of the object, and ſo not the very ſame ſubject, which at the ſame time appears both yellow and azure: For it is as impoſſible that the very ſame particle of any body ſhould at the ſame time differently modify or reflect the rays of light, as that it ſhould have two different figures and textures at the ſame time.

§ 16. *Of the Co-exiſtence of Powers a very little way.* But *as to the powers of ſubſtances* to change the ſenſible qualities of other bodies, which make a great part of our inquiries about them, and is no inconſiderable branch of our knowledge, I doubt, as to theſe, whether *our knowledge reaches* much farther than our experience; or whether we can come to the diſcovery of moſt of theſe powers, and be certain that they are in any ſubject, by the connection with any of thoſe *ideas* which to us make its eſſence. Becauſe the active and paſſive powers of bodies, and their ways of operating, conſiſting in a texture and motion of parts, which we cannot by any means come to diſcover, it is but in very few caſes we can be able to perceive their dependence on, or repugnance to any of thoſe *ideas* which make our complex one of that ſort of

things. I have here inſtanced in the corpuſcularian hypotheſis, as that which is thought to go fartheſt in an intelligible explication of the qualities of bodies; and I fear the weakneſs of human underſtanding is ſcarce able to ſubſtitute another, which will afford us a fuller and clearer diſcovery of the neceſſary connection and *co-exiſtence* of the powers which are to be obſerved united in ſeveral ſorts of them. This at leaſt is certain, that whichever hypotheſis be cleareſt and trueſt (for of that it is not my buſineſs to determine), our knowledge concerning corporeal ſubſtances will be very little advanced by any of them, till we are made to ſee what qualities and powers of bodies have a *neceſſary connection or repugnancy* one with another; which in the preſent ſtate of philoſophy, I think, we know but to a very ſmall degree; and I doubt whether, with thoſe faculties we have, we ſhall ever be able to carry our general knowledge (I ſay not particular experience) in this part much farther. Experience is that which in this part we muſt depend on; and it were to be wiſhed that it were more improved. We find the advantages ſome mens generous pains have this way brought to the ſtock of natural knowledge; and if others, eſpecially the philoſophers by fire, who pretend to it, had been ſo wary in their obſervations, and ſincere in their reports, as thoſe who call themſelves philoſophers ought to have been, our acquaintance with the bodies here about us, and our inſight into their powers and operations, had been yet much greater.

§ 17. *Of Spirits yet narrower.*

If we are at a loſs in reſpect of the powers and operations of bodies, I think it is eaſy to conclude, *we are much more in the dark in reference to ſpirits;* whereof we naturally have no *ideas*, but what we draw from that of our own, by reflecting on the operations of our own ſouls within us, as far as they can come within our obſervation. But how inconſiderable a rank the ſpirits that inhabit our bodies hold amongſt thoſe various and poſſibly innumerable kinds of no-

bler beings, and how far short they come of the endowments and perfections of cherubims and seraphims, and infinite sorts of spirits above us, is what, by a transient hint in another place, I have offered to my reader's consideration.

§ 18. 3. *Of other Relations it is not easy to say how far.*

As to the third sort of our knowledge, *viz.* the *agreement or disagreement of any of our* ideas *in any other relation:* this, as it is the largest field of our knowledge, so it is hard to determine how far it may extend; because the advances that are made in this part of knowledge, depending on our sagacity in finding intermediate *ideas*, that may show the *relations* and *habitudes* of *ideas*, whose co-existence is not considered, it is a hard matter to tell when we are at an end of such discoveries; and when reason has all the helps it is capable of, for the finding of proofs, or examining the agreement or disagreement of remote *ideas*. They that are ignorant of *algebra* cannot imagine the wonders in this kind are to be done by it: and what farther improvements and helps, advantageous to other parts of knowledge, the sagacious mind of man may yet find out, it is not easy to determine. This at least I believe, that the *ideas* of quantity are not those alone that are capable of demonstration and knowledge; and that other, and perhaps more useful parts of contemplation, would afford us certainty, if vices, passions, and domineering interest, did not oppose or menace such endeavours.

Morality capable of Demonstration.

The *idea* of a Supreme Being, infinite in power, goodness and wisdom, whose workmanship we are, and on whom we depend; and the *idea* of ourselves, as understanding rational beings, being such as are clear in us, would, I suppose, if duly considered and pursued, afford such foundations of our duty and rules of action, as might place *morality amongst the sciences capable of demonstration;* wherein I doubt not but from self-evident propositions, by necessary conse-

quences, as inconteſtible as thoſe in mathematics, the meaſures of right and wrong might be made out to any one that will apply himſelf with the ſame indifferency and attention to the one, as he does to the other of theſe ſciences. The *relation* of other *modes* may certainly be perceived, as well as thoſe of number and extenſion: and I cannot ſee why they ſhould not alſo be capable of demonſtration, if due methods were thought on to examine or purſue their agreement or diſagreement. *Where there is no property, there is no injuſtice*, is a propoſition as certain as any demonſtration in Euclid: for the *idea* of *property* being a right to any thing; and the *idea* to which the name *injuſtice* is given, being the invaſion or violation of that right; it is evident, that theſe *ideas* being thus eſtabliſhed, and theſe names annexed to them, I can as certainly know this propoſition to be true, as that a triangle has three angles equal to two right ones. Again, *No government allows abſolute liberty*: The *idea* of government being the eſtabliſhment of ſociety upon certain rules or laws which require conformity to them; and the *idea* of abſolute liberty being for any one to do whatever he pleaſes; I am as capable of being certain of the truth of this propoſition, as of any in the mathematics.

§ 19. *Two things have made moral* Ideas *thought incapable of Demonſtration. Their complexedneſs, and want of ſenſible repreſentations.*

THAT which in this reſpect has given the advantage to the *ideas* of quantity, and made them thought more capable of certainty and demonſtration, is,

Firſt, That they can be ſet down and repreſented by ſenſible marks, which have a greater and nearer correſpondence with them than any words or ſounds whatſoever. Diagrams drawn on paper are copies of the *ideas* in the mind, and not liable to the uncertainty that words carry in their ſignification. An angle, circle or ſquare, drawn in lines, lies open to the view, and cannot be miſtaken: it remains unchangeable, and may at leiſure be conſidered and examined, and the

demonſtration be reviſed, and all the parts of it may be gone over more than once without any danger of the leaſt change in the *ideas*. This cannot be thus done in *moral ideas*; we have no ſenſible marks that reſemble them, whereby we can ſet them down; we have nothing but words to expreſs them by, which though, when written, they remain the ſame, yet the *ideas* they ſtand for may change in the ſame man; and it is very ſeldom that they are not different in different perſons.

Secondly, Another thing that makes the greater difficulty in *ethics*, is, that *moral ideas* are commonly more complex than thoſe of the figures ordinarily conſidered in mathematics. From whence theſe two inconveniencies follow: *Firſt*, That their names are of more uncertain ſignification, the preciſe collection of ſimple *ideas* they ſtand for not being ſo eaſily agreed on, and ſo the ſign that is uſed for them in communication always, and in thinking often, does not ſteadily carry with it the ſame *idea*. Upon which the ſame diſorder, confuſion and error follows, as would if a man, going to demonſtrate ſomething of a *heptagon*, ſhould in the diagram he took to do it, leave out one of the angles, or by overſight make the figure with one angle more than the name ordinarily imported, or he intended it ſhould, when at firſt he thought of his demonſtration. This often happens, and is hardly avoidable in very complex moral *ideas*, where the ſame name being retained, one angle, *i. e.* one ſimple *idea* is left out or put in, in the complex one (ſtill called by the ſame name) more at one time than another. *Secondly*, From the complexedneſs of theſe moral *ideas*, there follows another inconvenience, *viz.* that the mind cannot eaſily retain thoſe preciſe combinations, ſo exactly and perfectly as is neceſſary in the examination of the habitudes and correſpondences, agreements or diſagreements, of ſeveral of them one with another; eſpecially where it is to be judged of by long deductions, and the intervention of

ſeveral other complex *ideas*, to ſhow the agreement or diſagreement of two remote ones.

The great help againſt this which mathematicians find in diagrams and figures, which remain unalterable in their draughts, is very apparent, and the memory would often have great difficulty otherwiſe to retain them ſo exactly whilſt the mind went over the parts of them ſtep by ſtep, to examine their ſeveral correſpondences. And though in caſting up a long ſum, either in *addition*, *multiplication*, or *diviſion*, every part be only a progreſſion of the mind, taking a view of its own *ideas*, and conſidering their agreement or diſagreement; and the reſolution of the queſtion be nothing but the reſult of the whole, made up of ſuch particulars, whereof the mind has a clear perception: yet without ſetting down the ſeveral parts by marks, whoſe preciſe ſignifications are known, and by marks that laſt and remain in view when the memory had let them go, it would be almoſt impoſſible to carry ſo many different *ideas* in mind, without confounding or letting ſlip ſome parts of the reckoning, and thereby making all our reaſonings about it uſeleſs. In which caſe, the cyphers or marks help not the mind at all to perceive the agreement of any two or more numbers, their equalities or proportions; that the mind has only by intuition of its own *ideas* of the numbers themſelves: But the numerical characters are helps to the memory, to record and retain the ſeveral *ideas* about which the demonſtration is made, whereby a man may know how far his intuitive knowledge, in ſurveying ſeveral of the particulars, has proceeded; that ſo he may without confuſion go on to what is yet unknown, and at laſt have in one view before him the reſult of all his perceptions and reaſonings.

§ 20. *Remedies of thoſe Difficulties.*

One part of *theſe diſadvantages* in moral *ideas*, which has made them be thought not capable of demonſtration, may in a good meaſure be *remedied* by definitions, ſetting down that collection of ſimple *ideas*, which every term ſhall ſtand for, and then uſing

the terms ſteadily and conſtantly for that preciſe collection. And what methods *algebra*, or ſomething of that kind, may hereafter ſuggeſt, to remove the other difficulties, is not eaſy to foretel. Confident I am, that if men would in the ſame method, and with the ſame indifferency, ſearch after moral, as they do mathematical truths, they would find them to have a ſtronger connection one with another, and a more neceſſary conſequence from our clear and diſtinct *ideas*, and to come nearer perfect demonſtration than is commonly imagined. But much of this is not to be expected, whilſt the deſire of eſteem, riches, or power, makes men eſpouſe the well endowed opinions in faſhion, and then ſeek arguments either to make good their beauty, or varniſh over and cover their deformity: nothing being ſo beautiful to the eye as truth is to the mind; nothing ſo deformed and irreconcileable to the underſtanding as a lie. For though many a man can with ſatisfaction enough own a no very handſome wife in his boſom; yet who is bold enough openly to avow, that he has eſpouſed a falſehood, and received into his breaſt ſo ugly a thing as a lie? Whilſt the parties of men cram their tenets down all mens throats, whom they can get into their power, without permitting them to examine their truth or falſehood, and will not let truth have fair play in the world, nor men the liberty to ſearch after it; what improvements can be expected of this kind? What greater light can be hoped for in the moral ſciences? The ſubject part of mankind in moſt places might, inſtead thereof, with *Egyptian* bondage expect *Egyptian* darkneſs, were not the candle of the Lord ſet up by himſelf in mens minds, which it is impoſſible for the breath or power of man wholly to extinguiſh.

§ 21. *Of real Exiſtence: we have an intuitive Knowledge of our own; demonſtrative, of God's; ſenſitive, of ſome few other things.*

As to the fourth ſort of our knowledge, *viz.* of the *real actual exiſtence* of things, we have an intuitive knowledge of our own *exiſtence*; a demonſtrative

knowledge of the existence of a God. Of the *existence* of any thing else, we have no other but a sensitive knowledge, which extends not beyond the objects present to our senses.

§ 22. *Our Ignorance great.*

Our knowledge being so narrow, as I have showed, it will perhaps give us some light into the present state of our minds, if we look a little into the dark side, and take a view of *our ignorance*: which being infinitely larger than our knowledge, may serve much to the quieting of disputes, and improvement of useful knowledge; if discovering how far we have clear and distinct *ideas*, we confine our thoughts within the contemplation of those things that are within the reach of our understandings, and launch not out into that abyss of darkness (where we have not eyes to see, nor faculties to perceive any thing) out of a presumption, that nothing is beyond our comprehension. But to be satisfied of the folly of such a conceit, we need not go far. He that knows any thing, knows this in the first place, that he need not seek long for instances of his ignorance. The meanest and most obvious things that come in our way, have dark sides, that the quickest sight cannot penetrate into. The clearest and most enlarged understandings of thinking men find themselves puzzled, and at a loss, in every particle of matter. We shall the less wonder to find it so, when we consider the *causes of our ignorance*; which, from what has been said, I suppose, will be found to be chiefly these three:

First, Want of *ideas*.

Secondly, Want of a discoverable connection between the *ideas* we have.

Thirdly, Want of tracing and examining our *ideas*.

§ 23. *First, One cause of it, want of* Ideas, *either such as we have no conception of, or such as particularly we have not.*

First, There are some things, and those not a few, that we are ignorant of for *want of ideas*.

First, All the simple *ideas* we have, are confined (as I have shown) to those we receive from corporeal objects by *sensation*, and from the operations of our own minds as the objects of *reflection*. But how much these few and narrow inlets are disproportionate to the vast whole extent of all beings, will not be hard to persuade those who are not so foolish as to think their span the measure of all things. What other simple *ideas* it is possible the creatures in other parts of the universe may have, by the assistance of senses and faculties more or perfecter than we have, or different from ours, it is not for us to determine: But to say, or think there are no such, because we conceive nothing of them, is no better an argument, than if a blind man should be positive in it, that there was no such thing as sight and colours, because he had no manner of *idea* of any such thing, nor could by any means frame to himself any notion about seeing. The ignorance and darkness that is in us, no more hinders nor confines the knowledge that is in others, than the blindness of a mole is an argument against the quicksightedness of an eagle. He that will consider the infinite power, wisdom and goodness of the Creator of all things, will find reason to think, it was not all laid out upon so inconsiderable, mean, and impotent a creature as he will find man to be, who, in all probability, is one of the lowest of all intellectual beings. What faculties, therefore, other species of creatures have to penetrate into the nature and inmost constitutions of things, what *ideas* they may receive of them, far different from ours, we know not. This we know, and certainly find, that we want several other views of them, besides those we have, to make discoveries of them more perfect. And we may be convinced that the *ideas* we can attain to by our faculties, are very disproportionate to things themselves, when a positive clear distinct one of substance itself, which is the foundation of all the rest, is concealed from us. But want of *ideas* of this kind being a part as well as cause of our ignorance, cannot be described. Only this, I

think, I may confidently say of it, that the intellectual and sensible world, are in this perfectly alike; that that part, which we see of either of them, holds no proportion with what we see not; and whatsoever we can reach with our eyes, or our thoughts, of either of them, is but a point, almost nothing in comparison of the rest.

§ 24. *Because of their Remoteness.*

Secondly, Another great cause of ignorance is the *want of* ideas *we are capable of*. As the want of *ideas*, which our faculties are not able to give us, shuts us wholly from those views of things, which it is reasonable to think other beings, perfecter than we, have, of which we know nothing; so the want of *ideas* I now speak of, keeps us in ignorance of things we conceive capable of being known to us. *Bulk*, *figure*, and *motion*, we have *ideas* of: But though we are not without *ideas* of these primary qualities of bodies in general, yet not knowing what is the particular *bulk*, *figure*, and *motion*, of the greatest part of the bodies of the universe, we are ignorant of the several powers, efficacies, and ways of operation, whereby the effects which we daily see are produced. These are hid from us in some things, by being *too remote*; and in others, by being *too minute*. When we consider the vast distance of the known and visible parts of the world, and the reasons we have to think, that what lies within our ken, is but a small part of the immense universe, we shall then discover an huge abyss of ignorance. What are the particular fabrics of the great masses of matter, which make up the whole stupendous frame of corporeal beings, how far they are extended, what is their motion, and how continued or communicated, and what influence they have one upon another, are contemplations that at first glimpse our thoughts lose themselves in. If we narrow our contemplation, and confine our thoughts to this little canton, I mean this system of our sun, and the grosser masses of matter that visibly move about it; what several sorts of vegetables, animals, and intellectual

corporeal beings, infinitely different from those of our little spot of earth, may there probably be in the other planets, to the knowledge of which, even of their outward figures and parts, we can no way attain, whilst we are confined to this earth; there being no natural means, either by sensation or reflection, to convey their certain *ideas* into our minds? They are out of the reach of those inlets of all our knowledge; and what sorts of furniture and inhabitants those mansions contain in them, we cannot so much as guess, much less have clear and distinct *ideas* of them.

§ 25. *Because of their Minuteness.*

If a great, nay, far the greatest part of the several ranks of *bodies* in the universe escape our notice by their remoteness, there are others that are no less concealed from us by their *minuteness*. These insensible corpuscles being the active parts of matter, and the great instruments of nature, on which depend not only all their secondary qualities, but also most of their natural operations; our want of precise distinct *ideas* of their primary qualities, keeps us in an incurable ignorance of what we desire to know about them. I doubt not but if we could discover the figure, size, texture, and motion of the minute constituent parts of any two bodies, we should know without trial several of their operations one upon another, as we do now the properties of a square or a triangle. Did we know the mechanical affections of the particles of *rhubarb*, *hemlock*, *opium*, and a *man*, as a watchmaker does those of a watch, whereby it performs its operations, and of a file, which by rubbing on them will alter the figure of any of the wheels; we should be able to tell beforehand, that *rhubarb* will purge, *hemlock* kill, and *opium* make a man sleep, as well as a watchmaker can, that a little piece of paper laid on the balance will keep the watch from going, till it be removed; or that some small part of it being rubbed by a file, the machine would quite lose its motion, and the watch go no more. The dissolving of silver in *aqua fortis*, and gold in *aqua regia*, and not *vice*

verſa, would be then perhaps no more difficult to know, than it is to a ſmith to underſtand why the turning of one key will open a lock, and not the turning of another. But whilſt we are deſtitute of ſenſes acute enough to diſcover the minute particles of bodies, and to give us *ideas* of their mechanical affections, we muſt be content to be ignorant of their properties and ways of operation; nor can we be aſſured about them any farther than ſome few trials we make are able to reach: But whether they will ſucceed again another time, we cannot be certain. This hinders our certain knowledge of univerſal truths concerning natural bodies: and our reaſon carries us herein very little beyond particular matter of fact.

§ 26. *Hence no Science of Bodies.*

AND therefore I am apt to doubt, that how far ſoever human induſtry may advance uſeful and *experimental* philoſophy *in phyſical things*, *ſcientifical* will ſtill be out of our reach; becauſe we want perfect and adequate *ideas* of thoſe very bodies which are neareſt to us, and moſt under our command. Thoſe which we have ranked into claſſes under names, and we think ourſelves beſt acquainted with, we have but very imperfect and incomplete *ideas* of. Diſtinct *ideas* of the ſeveral ſorts of bodies that fall under the examination of our ſenſes, perhaps we may have; but adequate *ideas*, I ſuſpect, we have not of any one amongſt them. And though the former of theſe will ſerve us for common uſe and diſcourſe, yet whilſt we want the latter, we are not capable of *ſcientifical knowledge*, nor ſhall ever be able to diſcover general, inſtructive, unqueſtionable truths concerning them. *Certainty* and *demonſtration* are things we muſt not in theſe matters pretend to. By the colour, figure, taſte, and ſmell, and other ſenſible qualities, we have as clear and diſtinct *ideas* of ſage and hemlock, as we have of a circle and a triangle; but having no *ideas* of the particular primary qualities of the minute parts of either of theſe plants, nor of other bodies which we would apply them to, we cannot tell what effects they will pro-

duce; nor when we see those effects, can we so much as guess, much less know their manner of production. Thus having no *ideas* of the particular mechanical affections of the minute parts of bodies that are within our view and reach, we are ignorant of their constitutions, powers, and operations; and of bodies more remote, we are yet more ignorant, not knowing so much as their very outward shapes, or the sensible and grosser parts of their constitutions.

§ 27. *Much less of Spirits.*

This, at first sight, will show us how disproportionate our knowledge is to the whole extent even of material beings; to which if we add the consideration of that infinite number of *spirits* that may be, and probably are, which are yet more remote from our knowledge, whereof we have no cognisance, nor can frame to ourselves any distinct *ideas* of their several ranks and sorts, we shall find this cause of ignorance conceal from us, in an impenetrable obscurity, almost the whole intellectual world; a greater certainly, and more beautiful world than the material. For bating some very few, and those, if I may so call them, superficial *ideas* of spirit, which by reflection we get of our own, and from thence the best we can collect of the Father of all spirits, the eternal independent Author of them and us and all things; we have no certain information, so much as of the existence of other spirits, but by revelation. Angels of all sorts are naturally beyond our discovery: And all those intelligences, whereof it is likely there are more orders than of corporeal substances, are things whereof our natural faculties give us no certain account at all. That there are minds and thinking beings in other men as well as himself, every man has a reason, from their words and actions, to be satisfied; and the knowledge of his own mind cannot suffer a man that considers, to be ignorant that there is a God. But that there are degrees of spiritual beings between us and the great God, who is there that by his own search and ability can come to know? Much less have we dis-

tinct *ideas* of their different natures, conditions, ſtates, powers, and ſeveral conſtitutions, wherein they agree or differ from one another, and from us; and therefore in what concerns their different ſpecies and properties, we are under an abſolute ignorance.

§ 28. *Secondly, Want of a diſcoverable Connection between* Ideas *we have.*

Secondly, What a ſmall part of the ſubſtantial beings that are in the univerſe, the want of *ideas* leave open to our knowledge, we have ſeen. In the next place, another cauſe of ignorance, of no leſs moment, is a want of a *diſcoverable connection* between thoſe *ideas* we have; for wherever we want that, we are utterly incapable of univerſal and certain knowledge; and are, as in the former caſe, left only to obſervation and experiment; which, how narrow and confined it is, how far from general knowledge, we need not be told. I ſhall give ſome few inſtances of this cauſe of our ignorance, and ſo leave it. It is evident that the bulk, figure, and motion of ſeveral bodies about us, produce in us ſeveral ſenſations, as of colours, ſounds, taſtes, ſmells, pleaſure and pain, &c. Theſe mechanical affections of bodies having no affinity at all with thoſe *ideas* they produce in us (there being no conceivable connection between any impulſe of any ſort of body, and any perception of a colour, or ſmell, which we find in our minds), we can have no diſtinct knowledge of ſuch operations beyond our experience, and can reaſon no otherwiſe about them, than as effects produced by the appointment of an infinitely wiſe Agent, which perfectly ſurpaſs our comprehenſions. As the *ideas* of ſenſible ſecondary qualities which we have in our minds, can by us be no way deduced from bodily cauſes, nor any correſpondence or connection be found between them and thoſe primary qualities which (experience ſhows us) produce them in us; ſo, on the other ſide, the operation of our minds upon our bodies is as unconceivable. How any thought ſhould produce a motion in body, is as remote from the nature of our *ideas*, as how any bo-

dy ſhould produce any thought in the mind. That it is ſo, if experience did not convince us, the conſideration of the things themſelves would never be able in the leaſt to diſcover to us. Theſe, and the like, though they have a conſtant and regular connection, in the ordinary courſe of things, yet that connection being not diſcoverable in the *ideas* themſelves, which appearing to have no neceſſary dependence one on another, we can attribute their connection to nothing elſe but the arbitrary determination of that all-wiſe Agent, who has made them to be, and to operate as they do, in a way wholly above our weak underſtandings to conceive.

§ 29. *Inſtances.*

In ſome of our *ideas* there are certain relations, habitudes, and connections, ſo viſibly included in the nature of the *ideas* themſelves, that we cannot conceive them ſeparable from them by any power whatſoever; and in theſe only we are capable of certain and univerſal knowledge. Thus the *idea* of a right-lined triangle neceſſarily carries with it an equality of its angles to two right ones. Nor can we conceive this relation, this connection of theſe two *ideas*, to be poſſibly mutable, or to depend on any arbitrary power, which of choice made it thus, or could make it otherwiſe. But the coherence and continuity of the parts of matter; the production of ſenſation in us of colours and ſounds, &c. by impulſe and motion; nay, the original rules and communication of motion being ſuch, wherein we can diſcover no natural connection with any *ideas* we have, we cannot but aſcribe them to the arbitrary will and good pleaſure of the wiſe Architect. I need not, I think, here mention the reſurrection of the dead, the future ſtate of this globe of earth, and ſuch other things, which are by every one acknowledged to depend wholly on the determination of a free Agent. The things that, as far as our obſervation reaches, we conſtantly find to proceed regularly, we may conclude do act by a law ſet them, but yet by a law that we know not; whereby, though

cauſes work ſteadily, and effects conſtantly flow from them, yet their *connections* and *dependences* being not diſcoverable in our *ideas*, we can have but an experimental knowledge of them. From all which it is eaſy to perceive what a darkneſs we are involved in, how little it is of being, and the things that are, that we are capable to know. And therefore we ſhall do no injury to our knowledge, when we modeſtly think with ourſelves, that we are ſo far from being able to comprehend the whole nature of the univerſe, and all the things contained in it, that we are not capable of a philoſophical *knowledge* of the bodies that are about us, and make a part of us; concerning their ſecondary qualities, powers, and operations, we can have no univerſal certainty. Several effects come every day within the notice of our ſenſes, of which we have ſo far *ſenſitive knowledge*; but the cauſes, manner, and certainty of their production, for the two foregoing reaſons, we muſt be content to be ignorant of. In theſe we can go no farther than particular experience informs us of matter of fact, and by analogy, to gueſs what effects the like bodies are, upon other trials, like to produce. But as to a perfect *ſcience* of natural bodies, (not to mention ſpiritual beings) we are, I think, ſo far from being capable of any ſuch thing, that I conclude it loſt labour to ſeek after it.

§ 30. *Thirdly, Want of tracing our* Ideas. *THIRDLY*, Where we have adequate *ideas*, and where there is a certain and diſcoverable connection between them, yet we are often ignorant, for want of *tracing* thoſe *ideas* which we have, or may have; and for want of finding out thoſe intermediate *ideas*, which may ſhow us what habitude of agreement or diſagreement they have one with another. And thus many are ignorant of mathematical truths, not out of any imperfection of their faculties, or uncertainty in the things themſelves, but for want of application in acquiring, examining, and by due ways comparing thoſe *ideas*. That which has moſt contributed to hinder the due *tracing* of our *ideas*, and finding out their rela-

tions, and agreements or disagreements one with another, has been, I suppose, the ill use of *words*. It is impossible that men should ever truly seek or certainly discover the agreement or disagreement of *ideas* themselves, whilst their thoughts flutter about, or stick only in sounds of doubtful and uncertain significations. Mathematicians abstracting their thoughts from names, and accustoming themselves to set before their minds the *ideas* themselves that they would consider, and not sounds instead of them, have avoided thereby a great part of that perplexity, puddering, and confusion, which has so much hindered mens progress in other parts of knowledge; for whilst they stick in words of undetermined and uncertain signification, they are unable to distinguish true from false, certain from probable, consistent from inconsistent, in their own opinions. This having been the fate or misfortune of a great part of the men of letters, the increase brought into the stock of real knowledge has been very little, in proportion to the schools, disputes and writings the world has been filled with; whilst students, being lost in the great wood of words, knew not whereabout they were, how far their discoveries were advanced, or what was wanting in their own or the general stock of knowledge. Had men, in the discoveries of the material, done as they have in those of the intellectual world, involved all in the obscurity of uncertain and doubtful ways of talking, volumes writ of navigation and voyages, theories and stories of zones and tides, multiplied and disputed; nay, ships built, and fleets set out, would never have taught us the way beyond the line; and the Antipodes would be still as much unknown, as when it was declared heresy to hold there were any. But having spoken sufficiently of words, and the ill or careless use that is commonly made of them, I shall not say any thing more of it here.

§ 31. *Extent in respect of Universality.*

HITHERTO we have examined the *extent* of our knowledge, in respect of the several sorts of beings that are.

There is another *extent* of it, *in respect of universality*, which will also deserve to be considered; and in this regard, our knowledge follows the nature of our *ideas*. If the *ideas* are abstract, whose agreement or disagreement we perceive, our knowledge is universal; for what is known of such general *ideas*, will be true of every particular thing, in whom that essence, *i. e.* that abstract *idea* is to be found; and what is once known of such *ideas* will be perpetually and for ever true. So that as to all general knowledge, we must search and find it only in our own minds, and it is only the examining of our own *ideas* that furnisheth us with that. Truths belonging to essences of things (that is, to abstract *ideas*) are eternal, and are to be found out by the contemplation only of those essences, as the existence of things is to be known only from experience. But having more to say of this in the chapters where I shall speak of general and real knowledge, this may here suffice as to the universality of our knowledge in general.

CHAP. IV.

OF THE REALITY OF KNOWLEDGE.

§ 1. Obj. *Knowledge placed in* Ideas *may be all bare Vision.*

I DOUBT not but my reader by this time may be apt to think, that I have been all this while only building a castle in the air; and be ready to say to me, To what purpose all this stir? Knowledge, say you, is only the perception of the agreement or disagreement of our own *ideas*: but who knows what those *ideas* may be? Is there any thing so extravagant, as the imaginations of mens brains? where is the head that has no *chimeras* in it? Or, if there be a sober and a wise man, what difference will there be, by your rules, between his knowledge and that of the most extravagant fancy in the world? They both have their *ideas*, and perceive their agreement and disagreement one

with another. If there be any difference between them, the advantage will be on the warm-headed man's fide, as having the more *ideas*, and the more lively; and fo, by your rules, he will be the more knowing. If it be true, that all knowledge lies only in the perception of the agreement or difagreement of our own *ideas*, the vifions of an enthufiaft, and the reafonings of a fober man, will be equally certain. It is no matter how things are; fo a man obferve but the agreement of his own imaginations, and talk conformably, it is all truth, all certainty. Such caftles in the air, will be as ftrong-holds of truth, as the demonftrations of Euclid. That an harpy is not a centaur, is by this way as certain knowledge, and as much a truth, as that a fquare is not a circle.

But *of what ufe is all this* fine *knowledge of mens own imaginations*, to a man that inquires after the reality of things? It matters not what mens fancies are, it is the knowledge of things that is only to be prized; it is this alone gives a value to our reafonings, and preference to one man's knowledge over another's, that it is of things as they really are, and not of dreams and fancies.

§ 2. Anfw. *Not fo, where* Ideas *agree with Thoughts.* To which I anfwer, That if our knowledge of our *ideas* terminate in them, and reach no farther, where there is fomething farther intended, our moft ferious thoughts will be of little more ufe than the reveries of a crazy brain; and the truths built thereon of no more weight, than the difcourfes of a man who fees things clearly in a dream, and with great affurance utters them. But I hope, before I have done, to make it evident, that this way of certainty, by the knowledge of our own *ideas*, goes a little farther than bare imagination; and I believe it will appear, that all the certainty of general truths a man has, lies in nothing elfe.

§ 3. Anfw. *Not fo, where* Ideas *agree with Things.* It is evident, the mind knows not things immediately, but only by the intervention of the *ideas* it has of

them. *Our knowledge* therefore is *real*, only ſo far as there is a conformity between our *ideas* and the reality of things. But what ſhall be here the criterion? How ſhall the mind, when it perceives nothing but its own *ideas*, know that they agree with things themſelves? This, though it ſeems not to want difficulty, yet, I think, there be two ſorts of *ideas*, that, we may be aſſured, agree with things.

§ 4. *As*, 1. *All ſimple* Ideas *do*.

FIRST, The firſt are ſimple *ideas*, which ſince the mind, as has been ſhowed, can by no means make to itſelf, muſt neceſſarily be the product of things operating on the mind in a natural way, and producing therein thoſe perceptions which by the wiſdom and will of our Maker they are ordained and adapted to. From whence it follows, that *ſimple* ideas *are not fictions* of our fancies, but the natural and regular productions of things without us, really operating upon us, and ſo carry with them all the conformity which is intended, or which our ſtate requires: For they repreſent to us things under thoſe appearances which they are fitted to produce in us, whereby we are enabled to diſtinguiſh the ſorts of particular ſubſtances, to diſcern the ſtates they are in, and ſo to take them for our neceſſities, and apply them to our uſes. Thus the *idea* of whiteneſs, or bitterneſs, as it is in the mind, exactly anſwering that power which is in any body to produce it there, has all the real conformity it can or ought to have with things without us. And this conformity between our ſimple *ideas*, and the exiſtence of things, is ſufficient for real knowledge.

§ 5. *All complex* Ideas, *except of Subſtances*.

SECONDLY, *All our complex* ideas, *except thoſe of ſubſtances*, being *archetypes* of the mind's own making, not intended to be the copies of any thing, nor referred to the exiſtence of any thing, as to their originals, *cannot want any conformity neceſſary to real knowledge*. For that which is not deſigned to repreſent any thing but itſelf, can never be capable of a wrong repreſentation, nor miſlead us from the true

apprehenſion of any thing, by its diſlikeneſs to it; and ſuch, excepting thoſe of ſubſtances, are all our complex *ideas;* which, as I have ſhowed in another place, are combinations of *ideas* which the mind by its free choice puts together, without conſidering any connection they have in nature. And hence it is, that in all theſe ſorts the *ideas* themſelves are conſidered as the *archetypes*, and things no otherwiſe regarded, but as they are conformable to them. So that we cannot but be infallibly certain, that all the knowledge we attain concerning theſe *ideas*, is real, and reaches things themſelves; becauſe in all our thoughts, reaſonings and diſcourſes of this kind, we intend things no farther than as they are conformable to our *ideas;* ſo that in theſe we cannot miſs of a certain and undoubted reality.

§ 6. *Hence the Reality of Mathematical Knowledge.* I DOUBT not but it will be eaſily granted, that the *knowledge* we have *of mathematical truths*, is not only certain, but *real knowledge*, and not the bare empty viſion of vain inſignificant *chimeras* of the brain: and yet, if we will conſider, we ſhall find that it is only of our own *ideas*. The mathematician conſiders the truth and properties belonging to a rectangle or circle, only as they are in *idea* in his own mind; for it is poſſible he never found either of them exiſting mathematically, *i. e.* preciſely true, in his life. But yet the knowledge he has of any truths or properties belonging to a circle, or any other mathematical figure, are nevertheleſs true and certain, even of real things exiſting; becauſe real things are no farther concerned, nor intended to be meant by any ſuch propoſitions, than as things really agree to thoſe *archetypes* in his mind. Is it true of the *idea* of a *triangle*, that its three angles are equal to two right ones? It is true alſo of a *triangle*, wherever it really exiſts. Whatever other figure exiſts, that is not exactly anſwerable to that *idea* of a *triangle* in his mind, is not at all concerned in that propoſition; and therefore he is certain all his knowledge concerning ſuch *ideas*, is

real knowledge; becauſe intending things no farther than they agree with thoſe his *ideas*, he is ſure what he knows concerning thoſe figures, when they have barely *an ideal exiſtence* in his mind, will hold true of them alſo, when they have a real exiſtence in matter; his conſideration being barely of thoſe figures, which are the ſame, wherever or however they exiſt.

§ 7. *And of Moral.*

And hence it follows, that *moral knowledge* is as *capable of real certainty* as mathematics: For certainty being but the perception of the agreement or diſagreement of our *ideas*, and demonſtration nothing but the perception of ſuch agreement, by the intervention of other *ideas* or mediums, our *moral ideas*, as well as mathematical, being *archetypes* themſelves, and ſo adequate and complete *ideas*, all the agreement or diſagreement which we ſhall find in them, will produce real knowledge, as well as in mathematical figures.

§ 8. *Exiſtence not required to make it real.*

For the attaining of *knowledge* and certainty, it is requiſite that we have determined *ideas*; and to make our knowledge *real*, it is requiſite that the *ideas* anſwer their *archetypes*. Nor let it be wondered, that I place the certainty of our knowledge in the conſideration of our *ideas*, with ſo little care and regard (as it may ſeem) to the real exiſtence of things; ſince moſt of thoſe diſcourſes, which take up the thoughts, and engage the diſputes of thoſe who pretend to make it their buſineſs to inquire after truth and certainty, will, I preſume, upon examination, be found to be *general propoſitions* and notions in which exiſtence is not at all concerned. All the diſcourſes of the mathematicians about the ſquaring of a circle, conic ſections, or any other part of mathematics, *concern not* the *exiſtence* of any of thoſe figures; but their demonſtrations, which depend on their *ideas*, are the ſame, whether there be any ſquare or circle exiſting in the world or no. In the ſame manner, the truth and certainty of *moral* diſcourſes abſtracts from the lives

of men, and the existence of those virtues in the world whereof they treat. Nor are Tully's Offices less true, because there is nobody in the world that exactly practises his rules, and lives up to that pattern of a virtuous man which he has given us, and which existed no where, when he writ, but in *idea*. If it be true in speculation, *i. e.* in *idea*, that *murder deserves death*, it will also be true in reality of any action that exists conformable to that *idea* of *murder*. As for other actions, the truth of that proposition concerns them not. And thus it is of all other species of things, which have no other essence but those *ideas* which are in the minds of men.

§ 9. *Nor will it be less true or certain, because moral* Ideas *are of our own making and naming.* But it will here be said, that if *moral knowledge* be placed in the contemplation of our own *moral ideas*, and those, as other modes, be of our own making, what strange notions will there be of *justice* and *temperance?* What confusion of virtues and vices, if every one may make what *ideas* of them he pleases? No confusion nor disorder in the things themselves, nor the reasonings about them; no more than (in mathematics) there would be a disturbance in the demonstration, or a change in the properties of figures, and their relations one to another, if a man should make a triangle with four corners, or a *trapezium* with four right angles; that is, in plain English, change the names of the figures, and call that by one name, which mathematicians call ordinarily by another. For let a man make to himself the *idea* of a figure with three angles, whereof one is a right one, and call it, if he please, *equilaterum* or *trapezium*, or any thing else, the properties of, and demonstrations about that *idea* will be the same, as if he called it a *rectangular triangle*. I confess, the change of the name, by the impropriety of speech, will at first disturb him, who knows not what *idea* it stands for; but as soon as the figure is drawn, the consequences and demonstration are plain and clear. Just the same is it in *moral*

knowledge, let a man have the *idea* of taking from others, without their consent, what their honest industry has possessed them of, and call this *justice*, if he please. He that takes the name here without the *idea* put to it will be mistaken, by joining another *idea* of his own to that name; but strip the *idea* of that name, or take it such as it is in the speaker's mind, and the same things will agree to it, as if you called it *injustice*. Indeed wrong names in moral discourses breed usually more disorder, because they are not so easily rectified as in mathematics, where the figure once drawn and seen, makes the name useless and of no force; for what need of a sign, when the thing signified is present and in view? But in moral names, that cannot be so easily and shortly done, because of the many decompositions that go to the making up the complex *ideas* of those modes. But yet for all this, *miscalling of* any of those *ideas*, contrary to the usual signification of the words of that language, hinders not but that we may have certain and demonstrative knowledge of their several agreements and disagreements, if we will carefully, as in mathematics, keep to the same precise *ideas*, and trace them in their several relations one to another, without being led away by their names. If we but separate the *idea* under consideration from the sign that stands for it, our knowledge goes equally on in the discovery of real truth and certainty, whatever sounds we make use of.

§ 10. *Misnaming disturbs not the Certainty of the Knowledge.*

One thing more we are to take notice of, that where God, or any other law-maker hath defined any moral names, there they have made the essence of that species to which that name belongs; and there it is not safe to apply or use them otherwise; but in other cases, it is bare impropriety of speech to apply them contrary to the common usage of the country. But yet even this too disturbs not the certainty of that knowledge, which is still to be had by a due contemplation, and comparing of those even nick-named *ideas*.

§ 11. Ideas *of Subſtances have their Archetypes without us.*

THIRDLY, There is another ſort of *complex ideas*, which being referred to *archetypes* without us, may differ from them, and ſo our knowledge about them may come ſhort of being real. Such are our *ideas* of ſubſtances, which conſiſting of a collection of ſimple *ideas*, ſuppoſed taken from the works of nature, may yet vary from them by having more or different *ideas* united in them, than are to be found united in things themſelves; from whence it comes to paſs, that they may, and often do fail of being exactly conformable to things themſelves.

§ 12. *So far as they agree with thoſe, ſo far our Knowledge concerning them is real.*

I SAY then, that to have *ideas* of *ſubſtances*, which, by being conformable to things, may afford us *real* knowledge, it is not enough, as in modes, to put together ſuch *ideas* as have no inconſiſtence, though they did never before ſo exiſt; *v. g.* the *ideas* of *ſacrilege* or *perjury*, &c. were as real and true *ideas* before, as after the exiſtence of any ſuch fact. But *our ideas of ſubſtances* being ſuppoſed copies, and referred to *archetypes* without us, muſt ſtill be taken from ſomething that does or has exiſted; they muſt not conſiſt of *ideas* put together at the pleaſure of our thoughts, without any real pattern they were taken from, though we can perceive no inconſiſtence in ſuch a combination. The reaſon whereof is, becauſe we, knowing not what real conſtitution it is of ſubſtances whereon our ſimple *ideas* depend, and which really is the cauſe of the ſtrict union of ſome of them one with another, and the excluſion of others; there are very few of them that we can be ſure are or are not inconſiſtent in nature, any farther than experience and ſenſible obſervation reach. Herein therefore is founded the *reality* of our knowledge concerning *ſubſtances*, that all our complex *ideas* of them muſt be ſuch, and ſuch only, as are made up of ſuch ſimple ones as have been diſcovered to coexiſt in nature. And our *ideas* being thus true,

though not perhaps very exact copies, are yet the subjects of *real* (as far as we have any) *knowledge* of them; which (as has been already shown) will not be found to reach very far; but so far as it does, it will still be *real knowledge*. Whatever *ideas* we have, the agreement we find they have with others, will still be knowledge. If those *ideas* be abstract, it will be general knowledge; but to make it *real* concerning substances, the *ideas* must be taken from the real existence of things. Whatever simple *ideas* have been found to co-exist in any substance, these we may with confidence join together again, and so make abstract *ideas* of substances; for whatever have once had an union in nature, may be united again.

§ 13. *In our inquiries about Substances, we must consider* Ideas, *and not confine our Thoughts to Names or Species supposed set out by Names.*

This, if we rightly consider, and *confine not our thoughts* and abstract *ideas* to names, as if there were, or could be no other *sorts* of things than what known names had already determined, and as it were set out, we should think of things with greater freedom and less confusion than perhaps we do. It would possibly be thought a bold paradox, if not a very dangerous falsehood, if I should say, that some *changelings*, who have lived forty years together without any appearance of reason, are something between a man and a beast; which prejudice is founded upon nothing else but a false supposition, that these two names, *man* and *beast*, stand for distinct species, so set out by real essences, that there can come no other species between them; whereas, if we will abstract from those names, and the supposition of such specific essences made by nature, wherein all things of the same denominations did exactly and equally partake; if we would not fancy that there were a certain number of these essences, wherein all things, as in moulds, were cast and formed, we should find that the *idea* of the shape, motion, and life of a man without reason, is as much a distinct *idea*, and makes as much a distinct *sort* of things from

man and beaſt, as the *idea* of the ſhape of an *aſs* with reaſon, would be different from either that of man or beaſt, and be a ſpecies of an animal between or diſtinct from both.

§ 14. *Objection againſt a Changeling being ſomething between a Man and Beaſt, anſwered.*

HERE every body will be ready to aſk, If *changelings* may be ſuppoſed ſomething between man and beaſt, pray what are they? I anſwer, *Changelings;* which is as good a word to ſignify ſomething different from the ſignification of *man* or *beaſt*, as the names man and beaſt are to have ſignifications different one from the other. This, well conſidered, would reſolve this matter, and ſhow my meaning without any more ado: But I am not ſo unacquainted with the zeal of ſome men, which enables them to ſpin conſequences, and to ſee religion threatened whenever any one ventures to quit their forms of ſpeaking, as not to foreſee what names ſuch a propoſition as this is like to be charged with; and without doubt it will be aſked, If *changelings* are ſomething between man and beaſt, what will become of them in the other world? To which I anſwer, 1. It concerns me not to know or inquire. To their own maſter they ſtand or fall. It will make their ſtate neither better nor worſe, whether we determine any thing of it or no. They are in the hands of a faithful Creator and a bountiful Father, who diſpoſes not of his creatures according to our narrow thoughts or opinions, nor diſtinguiſhes them according to names and ſpecies of our contrivance. And we that know ſo little of this preſent world we are in, may, I think, content ourſelves without being peremptory in defining the different ſtates which creatures ſhall come into when they go off this ſtage. It may ſuffice us, that he hath made known to all thoſe who are capable of inſtruction, diſcourſe and reaſoning, that they ſhall come to an account, and receive according to what they have done in this body.

§ 15.

BUT, *ſecondly*, I anſwer, The force of theſe mens queſ-

tion, (*viz.* will you deprive *changelings* of a future ſtate?) is founded on one of theſe two ſuppoſitions, which are both falſe: The firſt is, that all things that have the outward ſhape and appearance of a man muſt neceſſarily be deſigned to an immortal future being after this life: Or, ſecondly, that whatever is of human birth muſt be ſo. Take away theſe imaginations, and ſuch queſtions will be groundleſs and ridiculous. I deſire then thoſe who think there is no more but an accidental difference between themſelves and *changelings*, the eſſence in both being exactly the ſame, to conſider whether they can imagine immortality annexed to any outward ſhape of the body; the very propoſing it, is, I ſuppoſe, enough to make them diſown it. No one yet, that ever I heard of, how much ſoever immerſed in matter, allowed that excellency to any figure of the groſs ſenſible outward parts, as to affirm eternal life due to it, or a neceſſary conſequence of it; or that any maſs of matter ſhould, after its diſſolution here, be again reſtored hereafter to an everlaſting ſtate of ſenſe, perception, and knowledge, only becauſe it was moulded into this or that figure, and had ſuch a particular frame of its viſible parts. Such an opinion as this, placing immortality in a certain ſuperficial figure, turns out of doors all conſideration of ſoul or ſpirit, upon whoſe account alone ſome corporeal beings have hitherto been concluded immortal, and others not. This is to attribute more to the outſide than inſide of things; to place the excellency of a man more in the external ſhape of his body, than internal perfections of his ſoul; which is but little better than to annex the great and ineſtimable advantage of immortality and life everlaſting, which he has above other material beings; to annex it, I ſay, to the cut of his beard, or the faſhion of his coat. For this or that outward make of our bodies no more carries with it the hopes of an eternal duration, than the faſhion of a man's ſuit gives him reaſonable grounds to imagine it will never wear out, or that it will make him immortal. It will perhaps be ſaid, that nobody thinks.

that the ſhape makes any thing immortal, but it is the ſhape is the ſign of a rational ſoul within, which is immortal. I wonder who made it the ſign of any ſuch thing; for barely ſaying it will not make it ſo; it would require ſome proofs to perſuade one of it. No figure that I know ſpeaks any ſuch language; for it may as rationally be concluded, that the dead body of a man, wherein there is to be found no more appearance or action of life than there is in a ſtatue, has yet nevertheleſs a living ſoul in it, becauſe of its ſhape, as that there is a rational ſoul in a *changeling*, becauſe he has the outſide of a rational creature, when his actions carry far leſs marks of reaſon with them, in the whole courſe of his life, than what are to be found in many a beaſt.

§ 16. *Monſters.*

But it is the iſſue of rational parents, and muſt therefore be concluded to have a rational ſoul. I know not by what logic you muſt ſo conclude. I am ſure this is a concluſion that men no where allow of; for if they did, they would not make bold, as every where they do, to deſtroy ill-formed and miſhaped productions. Ay, but theſe are *monſters*. Let them be ſo; what will your driveling, unintelligent, untractable, *changeling* be? Shall a defect in the body make a *monſter*, a defect in the mind (the far more noble, and in the common phraſe, the far more eſſential part) not? Shall the want of a noſe or a neck make a *monſter*, and put ſuch iſſue out of the rank of men; the want of reaſon and underſtanding not? This is to bring all back again to what was exploded juſt now; this is to place all in the ſhape, and to take the meaſure of a man only by his outſide. To ſhow that, according to the ordinary way of reaſoning in this matter, people do lay the whole ſtreſs on the figure, and reſolve the whole eſſence of the ſpecies of man (as they make it) into the outward ſhape, how unreaſonable ſoever it be, and how much ſoever they diſown it, we need but trace their thoughts and practice a little farther, and then it will plainly appear. The well-ſhaped

changeling is a man, has a rational ſoul, though it appear not; this is paſt doubt, ſay you. Make the ears a little longer, and more pointed, and the noſe a little flatter than ordinary, and then you begin to boggle: make the face yet narrower, flatter and longer, and then you are at a ſtand: add ſtill more and more of the likeneſs of a brute to it, and let the head be perfectly that of ſome other animal, then preſently it is a *monſter*; and it is demonſtration with you that it hath no rational ſoul, and muſt be deſtroyed. Where now (I aſk) ſhall be the juſt meaſure of the utmoſt bounds of that ſhape, that carries with it a rational ſoul? For ſince there have been human *fœtus's* produced, half beaſt and half man; and others three parts one, and one part the other; and ſo it is poſſible they may be in all the variety of approaches to the one or the other ſhape, and may have ſeveral degrees of mixture of the likeneſs of a man or a brute; I would gladly know what are thoſe preciſe lineaments, which according to this hypotheſis, are or are not capable of a rational ſoul to be joined to them? What ſort of outſide is the certain ſign that there is or is not ſuch an inhabitant within? for till that be done, we talk at random of *man*, and ſhall always, I fear, do ſo, as long as we give ourſelves up to certain ſounds, and the imaginations of ſettled and fixed ſpecies in nature, we know not what. But after all, I deſire it may be conſidered, that thoſe who think they have anſwered the difficulty by telling us, that a miſhaped *fœtus* is a *monſter*, run into the ſame fault they are arguing againſt, by conſtituting a ſpecies between man and beaſt; for what elſe, I pray, is their monſter in the caſe (if the word *monſter* ſignifies any thing at all), but ſomething neither man nor beaſt, but partaking ſomewhat of either? And juſt ſo is the *changeling* before-mentioned. So neceſſary is it to quit the common notion of ſpecies and eſſences, if we will truly look into the nature of things, and examine them, by what our faculties can diſcover in them as they exiſt, and not by

groundleſs fancies, that have been taken up about them.

§ 17. *Words and Species.*

I HAVE mentioned this here, becauſe I think we cannot be too cautious that *words* and *ſpecies*, in the ordinary notions which we have been uſed to of them, impoſe not upon us. For I am apt to think, therein lies one great obſtacle to our clear and diſtinct knowledge, eſpecially in reference to ſubſtances; and from thence has roſe a great part of the difficulties about truth and certainty. Would we accuſtom ourſelves to ſeparate our contemplations and reaſonings from words, we might, in a great meaſure, remedy this inconvenience within our own thoughts; but yet it would ſtill diſturb us in our diſcourſe with others, as long as we retained the opinion, that *ſpecies* and their eſſences were any thing elſe but our abſtract *ideas* (ſuch as they are) with names annexed to them, to be the ſigns of them.

§ 18. *Recapitulation.*

WHEREVER we perceive the agreement or diſagreement of any of our *ideas*, there is certain knowledge; and wherever we are ſure thoſe *ideas* agree with the reality of things, there is certain real knowledge. Of which agreement of our *ideas* with the reality of things, having here given the marks, I think I have ſhown wherein it is, that *certainty*, *real certainty* conſiſts; which, whatever it was to others, was, I confeſs, to me heretofore, one of thoſe *deſiderata* which I found great want of.

CHAP. V.

OF TRUTH IN GENERAL.

§ 1. *What Truth is.*

WHAT is *truth*, was an inquiry many ages ſince; and it being that which all mankind either do or pretend to ſearch after, it cannot but be worth our while carefully to examine wherein it con-

fists, and so acquaint ourselves with the nature of it, as to observe how the mind distinguishes it from falsehood.

§ 2. *A right joining or separating of Signs;* i. e. Ideas *or Words.*

Truth then seems to me, in the proper import of the word, to signify nothing but *the joining or separating of signs, as the things signified by them do agree or disagree one with another.* The *joining* or *separating* of signs here meant, is what by another name we call proposition; so that truth properly belongs only to propositions; whereof there are two sorts, *viz.* mental and verbal, as there are two sorts of signs commonly made use of, *viz. ideas* and words.

§ 3. *Which make mental or verbal Propositions.*

To form a clear notion of *truth*, it is very necessary to consider *truth* of thought, and *truth* of words, distinctly one from another; but yet it is very difficult to treat of them asunder; because it is unavoidable, in treating of mental propositions, to make use of words; and then the instances given of *mental propositions* cease immediately to be barely mental, and become *verbal.* For a *mental proposition* being nothing but a bare consideration of the *ideas,* as they are in our minds stripped of names, they lose the nature of purely *mental propositions,* as soon as they are put into words.

§ 4. *Mental Propositions are very hard to be treated of.*

And that which makes it yet *harder to treat of mental* and verbal *propositions separately,* is, that most men, if not all, in their thinking and reasonings within themselves, make use of words instead of *ideas;* at least when the subject of their meditation contains in it complex *ideas;* which is a great evidence of the imperfection and uncertainty of our *ideas* of that kind, and may, if attentively made use of, serve for a mark to show us what are those things we have clear and perfect established *ideas* of, and what not; for if we will curiously observe the way our mind

takes in thinking and reasoning, we shall find, I suppose, that when we make any propositions within our own thoughts about *white* or *black*, *sweet* or *bitter*, a *triangle* or a *circle*, we can and often do frame in our minds the *ideas* themselves, without reflecting on the names. But when we would consider, or make propositions about the more complex *ideas*, as of a *man*, *vitriol*, *fortitude*, *glory*, we usually put the name for the *idea*; because the *ideas* these names stand for being for the most part imperfect, confused, and undetermined, we reflect on the *names* themselves, because they are more clear, certain and distinct, and readier occur to our thoughts than the pure *ideas*; and so we make use of these words instead of the *ideas* themselves, even when we would meditate and reason within ourselves, and make tacit mental propositions. In *substances*, as has been already noted, this is occasioned by the imperfection of our *ideas*; we making the name stand for the real essence, of which we have no *idea* at all. In *modes*, it is occasioned by the great number of simple *ideas* that go to the making them up; for many of them being compounded, the *name* occurs much easier than the complex *idea* itself, which requires time and attention to be recollected, and exactly represented to the mind, even in those men who have formerly been at the pains to do it; and is utterly impossible to be done by those, who, though they have ready in their memory the greatest part of the common words of their language, yet perhaps never troubled themselves in all their lives to consider what precise *ideas* the most of them stood for. Some confused or obscure notions have served their turns; and many who talk very much of *religion* and *conscience*, of *church* and *faith*, of *power* and *right*, of *obstructions* and *humours*, *melancholy* and *choler*, would perhaps have little left in their thoughts and meditations, if one should desire them to think only of the things themselves, and lay by those words, with which they so often confound others, and not seldom themselves also.

§ 5. *Being nothing but the joining or separating Ideas without Words.*

BUT to return to the consideration of truth; we must, I say, observe two sorts of propositions that we are capable of making.

First, Mental, wherein the *ideas* in our understandings are without the use of words *put together, or separated* by the mind, perceiving or judging of their agreement or disagreement.

Secondly, Verbal propositions, which *are words*, the signs of our *ideas, put together or separated in affirmative or negative sentences.* By which way of affirming or denying, these signs, made by sounds, are as it were put together or separated one from another. So that proposition consists in joining or separating signs, and truth consists in the putting together or separating those signs, according as the things which they stand for agree or disagree.

§ 6. *When mental Propositions contain real Truth, and when verbal.*

EVERY one's experience will satisfy him, that the mind, either by perceiving or supposing the agreement or disagreement of any of its *ideas*, does tacitly within itself put them into a kind of proposition affirmative or negative, which I have endeavoured to express by the terms, *putting together* and *separating;* but this action of the mind, which is so familiar to every thinking and reasoning man, is easier to be conceived by reflecting on what passes in us when we affirm or deny, than to be explained by words. When a man has in his mind the *idea* of two lines, *viz.* the *side* and *diagonal* of a square, whereof the diagonal is an inch long, he may have the *idea* also of the division of that line into a certain number of equal parts; *v. g.* into five, ten, an hundred, a thousand, or any other number, and may have the *idea* of that inch-line being divisible or not divisible, into such equal parts, as a certain number of them will be equal to the side-line. Now, whenever he perceives, believes, or supposes such a kind of divisibility to agree or disagree to his *idea* of

that line, he, as it were, *joins* or *separates* those two *ideas*, *viz.* the *idea* of that line, and the *idea* of that kind of divisibility; and so makes a mental proposition, which is true or false, according as such a kind of divisibility, a divisibility into such *aliquot* parts, does really agree to that line or no. When *ideas* are so put together, or separated in the mind, as they, or the things they stand for, do agree or not, that is, as I may call it, *mental truth*; but *truth of words* is something more, and that is, the affirming or denying of words one of another, as the *ideas* they stand for agree or disagree; and this again is twofold, either *purely verbal* and trifling, which I shall speak of, *chap.* 10., or *real* and instructive, which is the object of that real knowledge which we have spoken of already.

§ 7. *Objection against verbal Truth, that thus it may all be chimerical.*

But here again will be apt to occur the same doubt about truth, that did about knowledge; and it will be objected, that if truth be nothing but the joining or separating of words in propositions, as the *ideas* they stand for agree or disagree in mens minds, the knowledge of *truth is not so valuable a thing* as it is taken to be, nor worth the pains and time men employ to the search of it; since *by this account* it amounts to no more than the conformity of words to the *chimeras* of mens brains. Who knows not what odd notions many mens heads are filled with, and what strange *ideas* all mens brains are capable of? But if we rest here, we know the truth of nothing by this rule, but of the visionary world in our own imaginations; nor have other truth, but what as much concerns *harpies* and *centaurs*, as men and horses; for those and the like may be *ideas* in our heads, and have their agreement and disagreement there, as well as the *ideas* of real beings, and so have as true propositions made about them; and it will be altogether as true a proposition to say, all *centaurs are animals*, as that *all men are animals*; and the certain-

ty of one as great as the other. For in both the propositions, the words are put together according to the agreement of the *ideas* in our minds; and the agreement of the *idea* of *animal* with that of *centaur*, is as clear and visible to the mind, as the agreement of the *idea* of *animal* with that of *man*; and so these two propositions are equally true, equally certain. But of what use is all such truth to us?

§ 8. *Answered, Real Truth is about* Ideas *agreeing to things.*

THOUGH what has been said in the foregoing chapter, to distinguish real from imaginary knowledge, might suffice here, in answer to this doubt, to distinguish *real truth* from *chimerical*, or (if you please) *barely nominal*, they depending both on the same foundation; yet it may not be amiss here again to consider, that though our words signify nothing but our *ideas*, yet being designed by them to signify things, the *truth* they contain, when put into propositions, will be only *verbal*, when they stand for *ideas* in the mind, that have not an agreement with the reality of things. And therefore truth, as well as knowledge, may well come under the distinction of *verbal* and *real*; that being only *verbal truth*, wherein terms are joined according to the agreement or disagreement of the *ideas* they stand for, without regarding whether our *ideas* are such as really have, or are capable of having an existence in nature. But then it is they contain *real truth*, when these signs are joined, as our *ideas* agree; and when our *ideas* are such, as we know are capable of having an existence in nature; which in substances we cannot know, but by knowing that such have existed.

§ 9. *Falsehood is the joining of Names otherwise than their* Ideas *agree.*

TRUTH is the marking down in words the agreement or disagreement of *ideas* as it is; *Falsehood* is the marking down in words the agreement or disagreement of *ideas* otherwise than it is; and so far as these *ideas*, thus marked by sounds, agree to their archetypes, so far only is the *truth real*. The know-

ledge of this truth consists in knowing what *ideas* the words stand for, and the perception of the agreement or disagreement of those *ideas*, according as it is marked by those words.

§ 10. *General Propositions to be treated of more at large.*

But because words are looked on as the great conduits of truth and knowledge, and that in conveying and receiving of truth, and commonly in reasoning about it, we make use of words and propositions, I shall more at large inquire, wherein the certainty of real truths, contained in propositions, consists, and where it is to be had; and endeavour to show in what sort of universal propositions we are capable of being *certain* of their real truth or falsehood.

I shall begin with general propositions, as those which most employ our thoughts, and exercise our contemplation. *General truths* are most looked after by the mind, as those that most enlarge our knowledge; and by their comprehensiveness, satisfying us at once of many particulars, enlarge our view, and shorten our way to knowledge.

§ 11. *Moral and metaphysical Truth.*

Besides truth taken in the strict sense before mentioned, there are other sorts of truths; as, 1. *Moral truth*, which is speaking of things according to the persuasion of our own minds, though the proposition we speak agree not to the reality of things. 2. *Metaphysical truth*, which is nothing but the real existence of things, conformable to the *ideas* to which we have annexed their names. This, though it seems to consist in the very beings of things, yet when considered a little nearly, will appear to include a tacit proposition, whereby the mind joins that particular thing to the *idea* it had before settled with a name to it. But these considerations of truth, either having been before taken notice of, or not being much to our present purpose, it may suffice here only to have mentioned them.

CHAP. VI.

OF UNIVERSAL PROPOSITIONS, THEIR TRUTH AND CERTAINTY.

§ 1. *Treating of Words necessary to knowledge.* THOUGH the examining and judging of *ideas* by themselves, their names being quite laid aside, be the best and surest way to clear and distinct knowledge; yet through the prevailing custom of using sounds for *ideas*, I think it is very seldom practised. Every one may observe how common it is for names to be made use of, instead of the *ideas* themselves, even when men think and reason within their own breasts; especially if the *ideas* be very complex, and made up of a great collection of simple ones. This makes *the consideration of words and propositions so necessary a part of the treatise of knowledge*, that it is very hard to speak intelligibly of the one, without explaining the other.

§ 2. *General Truths hardly to be understood, but in verbal Propositions.* ALL the knowledge we have being only of particular or *general truths*, it is evident that whatever may be done in the former of these, the latter, which is that which with reason is most sought after, can never be well made known, and is very *seldom apprehended, but as conceived and expressed in words.* It is not therefore out of our way, in the examination of our knowledge, to inquire into the truth and certainty of universal propositions.

§ 2. *Certainty twofold, of Truth and of Knowledge.* BUT that we may not be misled in this case, by that which is the danger every where, I mean by the doubtfulness of terms, it is fit to observe, that certainty is twofold; *certainty of truth*, and *certainty of knowledge*. *Certainty of truth* is when words are so put together in propositions as exactly to express the agreement or disagreement of the *ideas* they stand for,

as really it is. *Certainty of knowledge* is to perceive the agreement or disagreement of *ideas*, as expressed in any proposition. This we usually call knowing, or being certain of the truth of any proposition.

§ 4. *No Proposition can be known to be true, where the Essence of each Species mentioned is not known.* Now because *we cannot be certain of the truth of any general proposition, unless we know the precise bounds and extent of the species its terms stand for*, it is necessary we should know the essence of each *species*, which is that which constitutes and bounds it. This in all simple *ideas* and modes is not hard to do; for in these the real and nominal essence being the same, or, which is all one, the abstract *idea* which the general term stands for, being the sole essence and boundary that is or can be supposed of the *species*, there can be no doubt how far the *species* extends, or what things are comprehended under each term; which, it is evident, are all that have an exact conformity with the *idea* it stands for, and no other. But in substances wherein a real essence distinct from the nominal is supposed to constitute, determine, and bound the species, the extent of the general word is very uncertain; because not knowing this real essence, we cannot know what is or is not of that *species*, and consequently what may or may not with certainty be affirmed of it. And thus speaking of a *man* or *gold*, or any other *species* of natural substances, as supposed constituted by a precise real essence, which nature regularly imparts to every individual of that kind, whereby it is made to be of that *species*, we cannot be certain of the truth of any affirmation or negation made of it: For *man* or *gold* taken in this sense, and used for *species* of things constituted by real essences different from the complex *idea* in the mind of the speaker, stand for we know not what; and the extent of these species, with such boundaries, are so unknown and undetermined, that it is impossible with any certainty to affirm, that all men are rational, or that all gold is yellow. But where the no-

minal eſſence is kept to, as the boundary of each ſpecies, and men extend the application of any general term no farther than to the particular things in which the complex *idea* it ſtands for is to be found, there they are in no danger to miſtake the bounds of each *ſpecies*, nor can be in doubt, on this account, whether any propoſition be true or no. I have choſe to explain this uncertainty of propoſitions in this ſcholaſtic way, and have made uſe of the terms of *eſſences* and *ſpecies*, on purpoſe to ſhow the abſurdity and inconvenience there is to think of them, as of any other ſort of realities, than barely abſtract *ideas* with names to them. To ſuppoſe that the *ſpecies* of things are any thing but the ſorting of them under general names, according as they agree to ſeveral abſtract *ideas*, of which we make thoſe names the ſigns, is to confound truth, and introduce uncertainty into all general propoſitions that can be made about them. Though therefore theſe things might, to people not poſſeſſed with ſcholaſtic learning, be perhaps treated of in a better and clearer way, yet thoſe wrong notions of *eſſences* or *ſpecies* having got root in moſt people's minds, who have received any tincture from the learning which has prevailed in this part of the world, are to be diſcovered and removed, to make way for that uſe of words which ſhould convey certainty with it.

§ 5. *This more particularly concerns Subſtances.* THE *names of ſubſtances* then, *whenever made to ſtand for ſpecies, which are ſuppoſed to be conſtituted by real eſſences*, which we know not, *are not capable to convey certainty to the underſtanding.* Of the truth of general propoſitions made up of ſuch terms, we cannot be ſure; the reaſon whereof is plain; for how can we be ſure that this or that quality is in *gold*, when we know not what is or is not *gold?* Since in this way of ſpeaking, nothing is *gold* but what partakes of an eſſence, which we not knowing, cannot know where it is or is not, and ſo cannot be ſure that any parcel of matter in the world is or is not in this ſenſe *gold*; being incurably ignorant, whether it has or has not

that which makes any thing to be called *gold*, *i. e.* that real essence of *gold* whereof we have no *idea* at all: this being as impossible for us to know, as it is for a blind man to tell in what flower the colour of a *pansie* is or is not to be found, whilst he has no *idea* of the colour of a *pansie* at all. Or if we could (which is impossible) certainly know where a real essence, which we know not, is; *v. g.* in what parcels of matter the real essence of *gold* is; yet could we not be sure, that this or that quality could with truth be affirmed of *gold*; since it is impossible for us to know, that this or that quality or *idea* has a necessary connection with a real essence, of which we have no *idea* at all, whatever species that supposed real essence may be imagined to constitute.

§ 6. *The Truth of few universal Propositions concerning Substances is to be known.*

On the other side, the *names of substances*, when made use of, as they should be, for the *ideas* men have in their minds, though they carry a clear and determinate signification with them, *will not* yet *serve us to make many universal propositions, of whose truth we can be certain*; not because in this use of them we are uncertain what things are signified by them, but because the complex *ideas* they stand for, are such combinations of simple ones, as carry not with them any discoverable connection or repugnancy, but with a very few other *ideas*.

§ 7. *Because co-existence of* Ideas *in few cases is to be known.*

The complex *ideas*, that our names of the species of substances properly stand for, are collections of such qualities as have been observed to co-exist in an unknown *substratum*, which we call *substance*: but what other qualities necessarily co-exist with such combinations, we cannot certainly know, unless we can discover their natural dependence; which in their primary qualities, we can go but a very little way in; and in all their secondary qualities, we can discover no connection at all, for the reasons mentioned, chap. 3.

viz. 1. Becauſe we know not the real conſtitutions of ſubſtances, on which each *ſecondary quality* particularly depends. 2. Did we know that, it would ſerve us only for experimental (not univerſal) knowledge, and reach with certainty no farther than that bare inſtance; becauſe our underſtandings can diſcover no conceivable connection between any *ſecondary quality*, and any modification whatſoever of any of the *primary* ones. And therefore there are very few general propoſitions to be made concerning ſubſtances, which can carry with them *undoubted certainty*.

§ 8. *Inſtance in Gold.*

ALL gold is fixed, is a propoſition whoſe truth we cannot be certain of, how univerſally ſoever it be believed. For if, according to the uſeleſs imagination of the ſchools, any one ſuppoſes the term *gold* to ſtand for a ſpecies of things ſet out by nature, by a real eſſence belonging to it, it is evident he knows not what particular ſubſtances are of that ſpecies; and ſo cannot, with certainty, affirm any thing univerſally of *gold*. But if he makes *gold* ſtand for a ſpecies determined by its nominal eſſence, let the nominal eſſence, for example, be the complex *idea* of a *body* of a certain *yellow* colour, *malleable*, *fuſible*, and *heavier* than any other known; in this proper uſe of the word *gold*, there is no difficulty to know what is or is not *gold*. But yet no other quality can with certainty be univerſally affirmed or denied of *gold*, but what hath a diſcoverable connection or inconſiſtency with that nominal eſſence. *Fixedneſs*, for example, having no neceſſary connection, that we can diſcover, with the colour, weight, or any other ſimple *idea* of our complex one, or with the whole combination together, it is impoſſible that we ſhould certainly know the truth of this propoſition, that *all gold is fixed*.

§ 9.

As there is no diſcoverable connection between *fixedneſs*, and the colour, weight, and other ſimple *ideas* of that nominal eſſence of *gold*; ſo if we make our complex *idea* of *gold*, a *body yellow*, *fuſible*, *ductile*,

weighty, and *fixed*, we shall be at the same uncertainty concerning *solubility* in *aqua regia*, and for the same reason; since we can never, from consideration of the *ideas* themselves, with certainty affirm or deny of a body, whose complex *idea* is made up of yellow, very weighty, ductile, fusible, and fixed, that it is soluble in *aqua regia*, and so on of the rest of its qualities. I would gladly meet with one general affirmation concerning any quality of *gold*, that any one can certainly know is true. It will, no doubt, be presently objected, is not this an universal certain proposition, *all gold is malleable?* To which I answer, it is a very certain proposition, if *malleableness* be a part of the complex *idea* the word *gold* stands for. But then here is nothing affirmed of *gold*, but that that sound stands for an *idea* in which *malleableness* is contained: and such a sort of truth and certainty as this, it is to say *a centaur is four-footed*. But if *malleableness* makes not a part of the specific essence the name *gold* stands for, it is plain, *all gold is malleable*, is not a certain proposition; because, let the complex *idea* of *gold* be made up of which soever of its other qualities you please, *malleableness* will not appear to depend on that complex *idea*, nor follow from any simple one contained in it; the connection that *malleableness* has (if it has any) with those other qualities, being only by the intervention of the real constitution of its insensible parts; which, since we know not, it is impossible we should perceive that connection, unless we could discover that which ties them together.

§ 10. *As far as any such co-existence can be known, so far universal Propositions may be certain. But this will go but a little way, because,*

The more, indeed, of these co-existing qualities we unite into one complex *idea*, under one name, the more precise and determinate we make the signification of that word; but yet never make it thereby more capable of *universal certainty*, in respect of other qualities not contained in our complex *idea*, since we perceive not their connection or dependence one on

another, being ignorant both of that real conſtitution in which they are all founded, and alſo how they flow from it; for the chief part of our knowledge concerning ſubſtances, is not, as in other things, barely of the relation of two *ideas* that may exiſt ſeparately, but is of the neceſſary connection and co-exiſtence of ſeveral diſtinct *ideas* in the ſame ſubject, or of their repugnancy ſo to co-exiſt. Could we begin at the other end, and diſcover what it was wherein that colour conſiſted, what made a body lighter or heavier, what texture of parts made it malleable, fuſible, and fixed, and fit to be diſſolved in this ſort of liquor, and not in another; if (I ſay) we had ſuch an *idea* as this of bodies, and could perceive wherein all ſenſible qualities originally conſiſt, and how they are produced, we might frame ſuch abſtract *ideas* of them, as would furniſh us with matter of more general knowledge, and enable us to make univerſal propoſitions, that ſhould carry *general truth* and *certainty* with them; but whilſt our complex *ideas* of the ſorts of ſubſtances are ſo remote from that internal real conſtitution on which their ſenſible qualities depend, and are made up of nothing but an imperfect collection of thoſe apparent qualities our ſenſes can diſcover, there can be very few general propoſitions concerning ſubſtances, of whoſe real truth we can be *certainly* aſſured, ſince there are but few ſimple *ideas*, of whoſe connection and neceſſary co-exiſtence we can have certain and undoubted knowledge. I imagine, amongſt all the *ſecondary qualities* of ſubſtances, and the powers relating to them, there cannot any two be named, whoſe neceſſary co-exiſtence, or repugnance to co-exiſt, can certainly be known, unleſs in thoſe of the ſame ſenſe, which neceſſarily exclude one another, as I have elſewhere ſhowed. No one, I think, by the colour that is in any body, can certainly know what ſmell, taſte, ſound, or tangible qualities it has, nor what alterations it is capable to make or receive on or from other bodies. The ſame may be ſaid of the ſound or taſte, &c. Our ſpecific names of ſubſtances ſtanding for

any collections of such *ideas*, it is not to be wondered, that we can with them make very few general propositions of *undoubted real certainty;* but yet so far as any complex *idea* of any sort of substances contains in it any simple *idea*, whose necessary co-existence with any other may be discovered, so far *universal propositions* may with *certainty* be made concerning it; *v. g.* could any one discover a necessary connection between *malleableness* and the *colour* or *weight* of *gold*, or any other part of the complex *idea* signified by that name, he might make a *certain* universal proposition concerning *gold* in this respect; and the real truth of this proposition, that *all gold is malleable*, would be as *certain* as of this, *the three angles of all right lined triangles are equal to two right ones.*

§ 11. *The Qualities which make our complex* Ideas *of Substances depend mostly on external, remote, and unperceived Causes.*

HAD we such *ideas* of substances, as to know what real constitutions produce those sensible qualities we find in them, and how those qualities flowed from thence, we could by the specific *ideas* of their real essences in our own minds, more certainly find out their properties, and discover what qualities they had or had not, than we can now by our senses; and to know the properties of *gold*, it would be no more necessary that *gold* should exist, and that we should make experiments upon it, than it is necessary for the knowing the properties of a triangle, that a triangle should exist in any matter; the *idea* in our minds would serve for the one as well as the other; but we are so far from being admitted into the secrets of Nature, that we scarce so much as ever approach the first entrance towards them; for we are wont to consider the substances we meet with each of them as an entire thing by itself, having all its qualities in itself, and independent of other things; overlooking, for the most part, the operations of those invisible fluids they are encompassed with, and upon whose motions and operations depend the greatest part of those qualities

which are taken notice of in them, and are made by us the inherent marks of diſtinction whereby we know and denominate them. Put a piece of *gold* any where by itſelf, ſeparate from the reach and influence of all other bodies, it will immediately loſe all its colour and weight, and perhaps malleableneſs too; which, for ought I know, would be changed into perfect friability. *Water*, in which to us *fluidity* is an eſſential quality, left to itſelf, would ceaſe to be fluid; but if inanimate bodies owe ſo much of their preſent ſtate to other bodies without them, that they would not be what they appear to us, were thoſe bodies that environ them removed, it is yet more ſo in *vegetables*, which are nouriſhed, grow, and produce leaves, flowers and ſeeds, in a conſtant ſucceſſion; and if we look a little nearer into the ſtate of *animals*, we ſhall find that their dependence, as to life, motion, and the moſt conſiderable qualities to be obſerved in them, is ſo wholly on extrinſical cauſes and qualities of other bodies that make no part of them, that they cannot ſubſiſt a moment without them; though yet thoſe bodies on which they depend are little taken notice of, and make no part of the complex *ideas* we frame of thoſe animals. Take the air but a minute from the greateſt part of living creatures, and they preſently loſe ſenſe, life, and motion. This the neceſſity of breathing has forced into our knowledge; but how many other extrinſical, and poſſibly very remote bodies, do the ſprings of thoſe admirable machines depend on, which are not vulgarly obſerved, or ſo much as thought on; and how many are there, which the ſevereſt inquiry can never diſcover? The inhabitants of this ſpot of the univerſe, though removed ſo many millions of miles from the ſun, yet depend ſo much on the duly tempered motion of particles coming from or agitated by it, that were this earth removed but a ſmall part of that diſtance out of its preſent ſituation, and placed a little farther or nearer that ſource of heat, it is more than probable that the greateſt part of the animals in it would immediately periſh; ſince

we find them so often destroyed by an excess or defect of the sun's warmth, which an accidental position in some parts of this our little globe exposes them to. The qualities observed in a *loadstone* must needs have their source far beyond the confines of that body; and the ravage made often on several sorts of animals, by invisible causes, the certain death (as we are told) of some of them, by barely passing the line, or, as it is certain of others, by being removed into a neighbouring country, evidently show that the concurrence and operation of several bodies, with which they are seldom thought to have any thing to do, is absolutely necessary to make them be what they appear to us, and to preserve those qualities by which we know and distinguish them. We are then quite out of the way, when we think that things contain within themselves the qualities that appear to us in them; and we in vain search for that constitution within the body of a fly, or an elephant, upon which depend those qualities and powers we observe in them; for which, perhaps, to understand them aright, we ought to look not only beyond this our earth and atmosphere, but even beyond the sun, or remotest star our eyes have yet discovered; for how much the being and operation of particular substances in this our globe depend on causes utterly beyond our view, is impossible for us to determine. We see and perceive some of the motions and grosser operations of things here about us, but whence the streams come that keep all these curious machines in motion and repair, how conveyed and modified, is beyond our notice and apprehension; and the great parts and wheels, as I may so say, of this stupendous structure of the universe, may, for ought we know, have such a connection and dependence in their influences and operations one upon another, that perhaps things in this our mansion would put on quite another face, and cease to be what they are, if some one of the stars or great bodies incomprehensibly remote from us, should cease to be or move as it does. This is certain; things, however

absolute and entire they seem in themselves, are but retainers to other parts of nature, for that which they are most taken notice of by us. Their observable qualities, actions, and powers, are owing to something without them; and there is not so complete and perfect a part that we know of nature, which does not owe the being it has, and the excellencies of it, to its neighbours; and we must not confine our thoughts within the surface of any body, but look a great deal farther, to comprehend perfectly those qualities that are in it.

§ 12.

If this be so, it is not to be wondered that *we have very imperfect* ideas *of substances;* and that the real essences, on which depend their properties and operations, are unknown to us. We cannot discover so much as that *size, figure,* and *texture* of their minute and active parts, which is really in them, much less the different motions and impulses made in and upon them by bodies from without, upon which depends, and by which is formed, the greatest and most remarkable part of those qualities we observe in them, and of which our complex *ideas* of them are made up. This consideration alone is enough to put an end to all our hopes of ever having the *ideas* of their real essences; which, whilst we want, the nominal essences we make use of instead of them, will be able to furnish us but very sparingly with any *general knowledge,* or universal propositions capable of real *certainty.*

§ 13. *Judgment may reach farther, but that is not Knowledge.*

We are not therefore to wonder, if *certainty* be to be found in very few general propositions made concerning substances: Our knowledge of their qualities and properties go very seldom farther than our senses reach and inform us. Possibly inquisitive and observing men may, by strength of *judgment,* penetrate farther, and on probabilities taken from wary observation, and hints well laid together, often guess right at what experience has not yet discovered to them; But

this is but guessing still; it amounts only to opinion, and has not that *certainty* which is requisite to knowledge; for all *general knowledge* lies only in our own thoughts, and consists barely in the contemplation of our own abstract *ideas*. Wherever we perceive any agreement or disagreement amongst them, there we have *general knowledge;* and by putting the names of those *ideas* together accordingly in propositions, can with certainty pronounce *general truths*. But because the abstract *ideas* of substances, for which their specific names stand, whenever they have any distinct and determinate signification, have a discoverable connection or inconsistency with but a very few other *ideas;* the *certainty of universal propositions concerning substances* is very narrow and scanty in that part, which is our principal inquiry concerning them; and there is scarce any of the names of substances, let the *idea* it is applied to be what it will, of which we can generally and with certainty pronounce, that it has or has not this or that other quality belonging to it, and constantly co-existing or inconsistent with that *idea*, wherever it is to be found.

§ 14. *What is requisite for our Knowledge of Substances.*

Before we can have any tolerable knowledge of this kind, we must first know what changes the *primary qualities* of one body do regularly produce in the *primary qualities* of another, and how. *Secondly*, We must know what *primary qualities* of any body produce certain sensations or *ideas* in us. This is in truth no less than to know all the effects of matter, under its divers modifications of bulk, figure, cohesion of parts, motion, and rest; which, I think, every body will allow is utterly impossible to be known by us without revelation; nor, if it were revealed to us what sort of figure, bulk, and motion of corpuscles, would produce in us the sensation of a *yellow* colour, and what sort of figure, bulk, and texture of parts, in the superficies of any body, were fit to give such corpuscles their due motion to produce that colour;

would that be enough to make *universal* propositions with *certainty*, concerning the several sorts of them, unless we had faculties acute enough to perceive the precise bulk, figure, texture, and motion of bodies in those minute parts, by which they operate on our senses, that so we might by those frame our abstract *ideas* of them. I have mentioned here only *corporeal* substances, whose operations seem to lie more level to our understandings; for as to the *operations of spirits*, both their thinking and moving of bodies, we at first sight find ourselves at a loss; though perhaps when we have applied our thoughts a little nearer to the consideration of bodies, and their operations, and examined how far our notions, even in these, reach, with any clearness, beyond sensible matter of fact, we shall be bound to confess, that even in these too our discoveries amount to very little beyond perfect ignorance and incapacity.

§ 15. *Whilst our* Ideas *of Substances contain not their real Constitutions, we can make but few general certain Propositions concerning them.*

This is evident, *the abstract complex* ideas *of substances*, for which their general names stand, not comprehending their real constitutions, *can afford us but very little universal certainty*; because our *ideas* of them are not made up of that, on which those qualities we observe in them, and would inform ourselves about, do depend, or with which they have any certain connection: *v. g.* Let the *idea* to which we give the name *man*, be, as it commonly is, a body of the ordinary shape, with sense, voluntary motion, and reason joined to it: This being the abstract *idea*, and consequently the essence of our species *man*, we can make but very few general certain propositions concerning *man*, standing for such an *idea*; because, not knowing the real constitution on which sensation, power of motion, and reasoning, with that peculiar shape, depend, and whereby they are united together in the same subject, there are very few other qualities, with which we can perceive them to have a necessary connection; and therefore we can-

not with certainty affirm, that *all men sleep by intervals;* that *no man can be nourished by wood or stones*; that *all men will be poisoned by hemlock;* because these *ideas* have no connection nor repugnancy with this our nominal essence of *man*, with this abstract *idea* that name stands for. We must in these and the like appeal to trial in particular subjects, which can reach but a little way; we must content ourselves with probability in the rest, but can have no general certainty, whilst our specific *idea* of *man* contains not that real constitution, which is the root, wherein all his inseparable qualities are united, and from whence they flow. Whilst our *idea*, the word *man* stands for, is only an imperfect collection of some sensible qualities and powers in him, there is no discernible connection or repugnance between our specific *idea*, and the operation of either the parts of hemlock or stones upon his constitution. There are animals that safely eat hemlock, and others that are nourished by wood and stones: But as long as we want *ideas* of those real constitutions of different sorts of animals, whereon these and the like qualities and powers depend, we must not hope to reach *certainty* in universal propositions concerning them. Those few *ideas* only which have a discernible connection with our nominal essence, or any part of it, can afford us such propositions; but these are so few, and of so little moment, that we may justly look on our certain *general knowledge of substances* as almost none at all.

§ 16. *Wherein lies the general Certainty of Propositions.*

To conclude, *general propositions*, of what kind soever, are then only capable of *certainty*, when the terms used in them stand for such *ideas*, whose agreement or disagreement, as there expressed, is capable to be discovered by us; and we are then certain of their truth or falsehood, when we perceive the *ideas* the terms stand for, to agree or not agree, according as they are affirmed or denied one of another; whence we may take notice, that *general certainty* is never to

be found but in our *ideas*. Whenever we go to seek it elsewhere in experiment, or observations without us, our knowledge goes not beyond particulars. It is the contemplation of our own abstract *ideas* that alone is able to afford us *general knowledge*.

CHAP. VII.

OF MAXIMS.

§ 1. *They are self-evident.* THERE are a sort of propositions, which under the name of *maxims* and *axioms* have passed for principles of science; and because they are *self-evident*, have been supposed innate, although nobody (that I know) ever went about to show the reason and foundation of their clearness or cogency. It may however be worth while to inquire into the reason of their evidence, and see whether it be peculiar to them alone, and also examine how far they influence and govern our other knowledge.

§ 2. *Wherein that Self-evidence consists.* KNOWLEDGE, as has been shown, consists in the perception of the agreement or disagreement of *ideas*: Now where that agreement or disagreement is perceived immediately by itself, without the intervention or help of any other, there our *knowledge* is *self-evident*. This will appear to be so to any one who will but consider any of those propositions, which, without any proof, he assents to at first sight; for in all of them he will find, that the reason of his assent is from that agreement or disagreement which the mind, by an immediate comparing them, finds in those *ideas* answering the affirmation or negation in the proposition.

§ 3. *Self-evidence not peculiar to received Axioms.* THIS being so, in the next place let us consider, whether this *self-evidence* be peculiar only to those propositions, which commonly pass under the name of

maxims, and have the dignity of axioms allowed them. And here it is plain, that ſeveral other truths, not allowed to be axioms, partake equally with them in this *ſelf-evidence*. This we ſhall ſee, if we go over theſe ſeveral ſorts of agreement or diſagreement of *ideas*, which I have above mentioned, *viz.* identity relation, co-exiſtence, and real exiſtence; which will diſcover to us, that not only thoſe few propoſitions, which have had the credit of *maxims*, are ſelf-evident, but a great many, even almoſt an infinite number of *other propoſitions*, are ſuch.

§ 4. 1. *As to Identity and Diverſity, all Propoſitions are equally ſelf-evident.*

For, *firſt*, the immediate perception of the agreement or diſagreement of *identity* being founded in the mind's having diſtinct *ideas*, this affords us as many *ſelf-evident* propoſitions as we have diſtinct *ideas*. Every one that has any knowledge at all, has, as the foundation of it, various and diſtinct *ideas*; and it is the firſt act of the mind (without which it can never be capable of any knowledge) to know every one of its *ideas* by itſelf, and diſtinguiſh it from others. Every one finds in himſelf, that he knows the *ideas* he has; that he knows alſo, when any one is in his underſtanding, and what it is; and that when more than one are there, he knows them diſtinctly and unconfuſedly one from another; which always being ſo (it being impoſſible but that he ſhould perceive what he perceives), he can never be in doubt when any *idea* is in his mind, that it is there, and is that *idea* it is; and that two diſtinct *ideas*, when they are in his mind, are there, and are not one and the ſame *idea*. So that all ſuch affirmations and negations are made without any poſſibility of doubt, uncertainty or heſitation, and muſt neceſſarily be aſſented to as ſoon as underſtood; that is, as ſoon as we have in our minds determined *ideas*, which the terms in the propoſition ſtand for; and therefore wherever the mind with attention conſiders any propoſition, ſo as to perceive the two *ideas* ſignified by the terms, and affirm-

ed or denied one of the other, to be the same or different; it is presently and infallibly certain of the truth of such a proposition, and this equally, whether these propositions be in terms standing for more general *ideas*, or such as are less so, *v. g.* whether the general *idea* of *being* be affirmed of itself, as in this proposition, *whatsoever is, is;* or a more particular *idea* be affirmed of itself, as *a man is a man*, or *whatsoever is white, is white;* or whether the *idea* of *being* in general be denied of *not being*, which is the only (if I may so call it) *idea* different from it, as in this other proposition, *it is impossible for the same thing to be, and not to be;* or any *idea* of any particular being be denied of another different from it, as *a man is not a horse, red is not blue.* The difference of the *ideas*, as soon as the terms are understood, makes the truth of the proposition presently visible, and that with an equal certainty and easiness in the less, as well as the more general propositions, and all for the same reason, *viz.* because the mind perceives in any *ideas*, that it has the same *idea* to the same with itself; and two different *ideas* to be different, and not the same; and this it is equally certain of, whether these *ideas* be more or less general, abstract and comprehensive. It is not therefore alone to these two general propositions, *whatsoever is, is*; and, *it is impossible for the same thing to be, and not to be;* that this self-evidence belongs by any peculiar right. The perception of being, or not being, belongs no more to these vague *ideas*, signified by the terms *whatsoever* and *thing*, than it does to any other *ideas;* these two general maxims amounting to no more, in short, but this, that *the same is the same*, and *same is not different*, are truths known in more particular instances, as well as in these general maxims, and known also in particular instances, before these general maxims are ever thought on, and draw all their force from the discernment of the mind employed about particular *ideas.* There is nothing more visible than that the mind, without the help of any proof, or reflection on either of these general pro-

positions, perceives so clearly, and knows so certainly, that the *idea* of white is the *idea* of white, and not the *idea* of blue; and that the *idea* of white, when it is in the mind, is there, and is not absent; that the consideration of these axioms can add nothing to the evidence or certainty of its knowledge. Just so it is (as every one may experiment in himself) in all the *ideas* a man has in his mind: He knows each to be itself, and not to be another; and to be in his mind, and not away when it is there, with a certainty that cannot be greater; and therefore the truth of no general proposition can be known with a greater certainty, nor add any thing to this. So that in respect of identity, our intuitive knowledge reaches as far as our *ideas;* and we are capable of making as many self-evident propositions, as we have names for distinct *ideas.* And I appeal to every one's own mind, whether this proposition, *a circle is a circle,* be not as self-evident a proposition, as that consisting of more general terms, *whatsoever is, is:* And again, whether this proposition, *blue is not red,* be not a proposition that the mind can no more doubt of, as soon as it understands the words, than it does of that axiom, *it is impossible for the same thing to be, and not to be;* and so of all the like.

§ 5. 2. *In Co-existence we have few self-evident Propositions.*

Secondly, As to *co-existence,* or such necessary connection between two *ideas,* that in the subject where one of them is supposed, there the other must necessarily be also: Of such agreement or disagreement as this, the mind has an immediate perception but in very few of them, and therefore in this sort we have but very little intuitive knowledge; nor are there to be found very many propositions that are self-evident, though some there are, *v. g.* the *idea* of filling a place equal to the contents of its superficies, being annexed to our *idea* of body, I think it is a self-evident proposition, *that two bodies cannot be in the same place.*

§ 6. 3. *In other Relations we may have.* *THIRDLY*, As to the *relations* of modes, mathematicians have framed many axioms concerning that one relation of equality; as, *equals taken from equals, the remainder will be equals*; which, with the reſt of that kind, however, they are received for maxims by the mathematicians, and are unqueſtionable truths; yet, I think, that any one who conſiders them, will not find that they have a clearer ſelf-evidence than theſe, that *one and one are equal to two*; that *if you take from the five fingers of one hand two, and from the five fingers of the other hand two, the remaining numbers will be equal.* Theſe and a thouſand other ſuch propoſitions may be found in numbers, which at the very firſt hearing, force the aſſent, and carry with them an equal, if not greater clearneſs, than thoſe mathematical axioms.

§ 7. 4. *Concerning real Exiſtence we have none.* *FOURTHLY*, As to *real exiſtence*, ſince that has no connection with any other *ideas*, but that of ourſelves, and of a firſt being, we have in that, concerning the real exiſtence of all other beings, not ſo much as demonſtrative, much leſs a ſelf-evident knowledge; and therefore concerning thoſe there are no maxims.

§ 8. *Thoſe Axioms do not much influence our other Knowledge.*

IN the next place, let us conſider what *influence* theſe received *maxims* have upon the other parts of our knowledge. The rules eſtabliſhed in the ſchools, that all reaſonings are *ex præcognitis et præconceſſis*, ſeem to lay the foundation of all other knowledge in theſe maxims, and to ſuppoſe them to be *præcognita*; whereby, I think, are meant theſe two things: Firſt, That theſe axioms are thoſe truths that are firſt known to the mind; and, Secondly, That upon them the other parts of our knowledge depend.

§ 9. *Becauſe they are not the Truths we firſt knew.* *FIRST*, That they are not the *truths firſt known* to the mind is evident to experience, as we have ſhown in another place, *Book* I. *Chap.* 2. Who perceives not that a

child certainly knows that a ſtranger is not its mother; that its ſucking-bottle is not the rod, long before he knows that *it is impoſſible for the ſame thing to be, and not to be?* And how many truths are there about numbers, which it is obvious to obſerve that the mind is perfectly acquainted with, and fully convinced of, before it ever thought on theſe general maxims, to which mathematicians, in their arguings, do ſometimes refer them? Whereof the reaſon is very plain: For that which makes the mind aſſent to ſuch propoſitions, being nothing elſe but the perception it has of the agreement or diſagreement of its *ideas*, according as it finds them affirmed or denied one of another in words it underſtands, and every *idea* being known to be what it is, and every two diſtinct *ideas* being known not to be the ſame; it muſt neceſſarily follow, that ſuch ſelf-evident truths muſt be *firſt* known, which conſiſt of *ideas* that are *firſt* in the mind: and the *ideas firſt* in the mind, it is evident, are thoſe of particular things, from whence, by ſlow degrees, the underſtanding proceeds to ſome few general ones; which being taken from the ordinary and familiar objects of ſenſe, are ſettled in the mind, with general names to them. Thus, particular *ideas* are *firſt* received and diſtinguiſhed, and ſo knowledge got about them; and next to them, the leſs general or ſpecific, which are next to particular; for abſtract *ideas* are not ſo obvious or eaſy to children, or the yet unexerciſed mind, as particular ones. If they ſeem ſo to grown men, it is only becauſe by conſtant and familiar uſe they are made ſo; for when we nicely reflect upon them, we ſhall find, that general *ideas* are fictions and contrivances of the mind, that carry difficulty with them, and do not ſo eaſily offer themſelves, as we are apt to imagine. For example, does it not require ſome pains and ſkill to form the *general idea* of a *triangle?* (which is yet none of the moſt abſtract, comprehenſive, and difficult), for it muſt be neither oblique, nor rectangle, neither equilateral, equicrural, nor ſcalenon; but all and none of theſe at once. In effect, it

is something imperfect, that cannot exist; an *idea* wherein some parts of several different and inconsistent *ideas* are put together. It is true, the mind, in this imperfect state, has need of such *ideas*, and makes all the haste to them it can, for the conveniency of communication and enlargement of knowledge; to both which it is naturally very much inclined. But yet one has reason to suspect such *ideas* are marks of our imperfection; at least this is enough to show, that the most abstract and general *ideas* are not those that the mind is *first* and most easily acquainted with, nor such as its earliest knowledge is conversant about.

§ 10. *Because on them the other Parts of our Knowledge do not depend.*

Secondly, From what has been said, it plainly follows, that these magnified *maxims* are not the principles and *foundations* of all our other *knowledge*; for if there be a great many other truths, which have as much self-evidence as they, and a great many that we know before them, it is impossible they should be the *principles* from which we deduce all other truths. Is it impossible to know that *one* and *two* are equal to *three*, but by virtue of this, or some such axiom, *viz. the whole is equal to all its parts taken together?* Many a one knows that *one* and *two* are equal to *three*, without having heard or thought on that or any other axiom by which it might be proved; and knows it as certainly, as any other man knows, that the *whole is equal to all its parts*, or any other maxim, and all from the same reason of self-evidence; the equality of those *ideas* being as visible and certain to him without that, or any other axiom, as with it, it needing no proof to make it perceived; nor after the knowledge, *that the whole is equal to all its parts*, does he know that *one* and *two* are equal to *three*, better or more certainly, than he did before; for if there be any odds in those *ideas*, the *whole* and *parts* are more obscure, or at least more difficult to be settled in the mind, than those of *one*, *two*, and *three*. And indeed, I think, I may ask these men, who will needs have all know-

ledge, beſides theſe general principles themſelves, to *depend* on general, innate, and ſelf-evident principles, what principle is requiſite to prove, that *one* and *one* are *two*, that *two* and *two* are *four*, that *three* times *two* are *ſix?* Which being known without any proof, do evince, that either all knowledge does not *depend* on certain *præcognita*, or general maxims, called principles, or elſe that theſe are principles; and if theſe are to be counted principles, a great part of numeration will be ſo. To which if we add all the ſelf-evident propoſitions, which may be made about all our diſtinct *ideas*, principles will be almoſt infinite, at leaſt innumerable, which men arrive to the knowledge of, at different ages; and a great many of theſe innate principles they never come to know all their lives. But whether they come in view of the mind, earlier or later, this is true of them, that they are all known by their native evidence, are wholly independent, receive no light, nor are capable of any proof one from another; much leſs the more particular from the more general, or the more ſimple from the more compounded; the more ſimple, and leſs abſtract, being the moſt familiar, and the eaſier and earlier apprehended. But whichever be the cleareſt *ideas*, the evidence and *certainty* of all ſuch propoſitions is in this, that a man ſees the ſame *idea* to be the ſame *idea*, and infallibly perceives two different *ideas* to be different *ideas*: For when a man has in his underſtanding the *ideas* of *one* and of *two*, the *idea* of *yellow* and the *idea* of *blue*, he cannot but certainly know, that the *idea* of one is the *idea* of one, and not the *idea* of two; and that the *idea* of yellow is the *idea* of yellow, and not the *idea* of blue; for a man cannot confound the *ideas* in his mind, which he has diſtinct; that would be to have them confuſed and diſtinct at the ſame time, which is a contradiction; and to have none diſtinct, is to have no uſe of our faculties, to have no knowledge at all. And therefore, what *idea* ſoever is affirmed of itſelf, or whatſoever two entire diſtinct *ideas* are denied one of another, the mind can-

not but assent to such a proposition as infallibly true, as soon as it understands the terms without hesitation or need of proof, or regarding those made in more general terms, and called maxims.

§ 11. *What use these general Maxims have.* WHAT shall we then say? Are these *general maxims* of no use? By no means; though perhaps their use is not that which it is commonly taken to be. But since doubting in the least of what hath been by some men ascribed to these *maxims*, may be apt to be cried out against, as overturning the foundations of all the sciences, it may be worth while to consider them, with respect to other parts of our knowledge, and examine more particularly to what purposes they serve, and to what not.

1. It is evident from what has been already said, that they are of no use to prove or confirm less general self-evident propositions.

2. It is as plain that they are not, nor have been the foundations whereon any science hath been built. There is, I know, a great deal of talk, propagated from scholastic men, of sciences and the maxims on which they are built; but it has been my ill luck never to meet with any such sciences, much less any one built upon these two *maxims*, *what is, is*, and *it is impossible for the same thing to be, and not to be:* And I would be glad to be shown where any such science, erected upon these or any other general *axioms*, is to be found; and should be obliged to any one, who would lay before me the frame and system of any science so built on these or any such like *maxims*, that could not be shown to stand as firm without any consideration of them. I ask, whether these general *maxims* have not the same use in the study of divinity, and in theological questions, that they have in the other sciences? They serve here too to silence wranglers, and put an end to dispute. But I think that nobody will therefore say, that the *Christian* religion is built upon these *maxims*, or that the knowledge we have of it is derived from these *principles:* It is from

revelation we have received it, and without revelation theſe *maxims* had never been able to help us to it. When we find out an *idea*, by whoſe intervention we diſcover the connection of two others, this is a revelation from God to us, by the voice of reaſon; for we then come to know a truth that we did not know before. When God declares any truth to us, this is a revelation to us by the voice of his ſpirit, and we are advanced in our knowledge; but in neither of theſe do we receive our light or knowledge from *maxims*; but in the one, the things themſelves afford it, and we ſee the truth in them by perceiving their agreement or diſagreement; in the other, God himſelf affords it immediately to us, and we ſee the truth of what he ſays in his unerring veracity.

3. They are not of uſe to help men forward in the advancement of ſciences, or new diſcoveries of yet unknown truths. Mr. Newton, in his never enough to be admired book, has demonſtrated ſeveral propoſitions, which are ſo many new truths, before unknown to the world, and are farther advances in mathematical knowledge; but for the diſcovery of theſe, it was not the general *maxims*, *what is*, *is*, or, *the whole is bigger than a part*, or the like, that helped him; theſe were not the clues that led him into the diſcovery of the truth and certainty of thoſe propoſitions, nor was it by them that he got the knowledge of thoſe demonſtrations; but by finding out intermediate *ideas*, that ſhowed the agreement or diſagreement of the *ideas*, as expreſſed in the propoſitions he demonſtrated. This is the great exerciſe and improvement of human underſtanding in the enlarging of knowledge, and advancing the ſciences, wherein they are far enough from receiving any help from the contemplation of theſe, or the like magnified *maxims*. Would thoſe who have this traditional admiration of theſe propoſitions, that they think no ſtep can be made in knowledge without the ſupport of an *axiom*, no ſtone laid in the building of the ſciences without a general *maxim*, but diſtinguiſh between the me-

thod of acquiring knowledge, and of communicating; between the method of raiſing any ſcience, and that of teaching it to others as far as it is advanced; they would ſee that thoſe general *maxims* were not the foundations on which the firſt diſcoverers raiſed their admirable ſtructures, nor the keys that unlocked and opened thoſe ſecrets of knowledge; though afterwards, when ſchools were erected, and ſciences had their profeſſors to teach what others had found out, they often made uſe of *maxims*, *i. e.* laid down certain propoſitions which were ſelf-evident, or to be received for true; which being ſettled in the minds of their ſcholars as unqueſtionable verities, they on occaſion made uſe of, to convince them of truths in particular inſtances that were not ſo familiar to their minds as thoſe general *axioms* which had before been inculcated to them, and carefully ſettled in their minds; though theſe particular inſtances, when well reflected on, are no leſs ſelf-evident to the underſtanding, than the general *maxims* brought to confirm them; and it was in thoſe particular inſtances that the firſt diſcoverer found the truth, without the help of the general *maxims*: And ſo may any one elſe do, who with attention conſiders them.

To come, therefore, to the uſe that is made of *maxims*,

1. They are of uſe, as has been obſerved, in the ordinary methods of teaching ſciences as far as they are advanced, but of little or none in advancing them farther.

2. They are of uſe in diſputes, for the ſilencing of obſtinate wranglers, and bringing thoſe conteſts to ſome concluſion. Whether a need of them to that end came not in, in the manner following, I crave leave to inquire. The ſchools having made diſputation the touchſtone of mens abilities, and the *criterion* of knowledge, adjudged victory to him that kept the field; and he that had the laſt word, was concluded to have the better of the argument, if not of the cauſe; but becauſe by this means there was like to be no deciſion be-

tween ſkilful combatants, whilſt one never failed of a *medius terminus* to prove any propoſition, and the other could as conſtantly, without or with a diſtinction, deny the *major* or *minor*; to prevent, as much as could be, the running out of diſputes into an endleſs train of ſyllogiſms, certain general propoſitions, moſt of them indeed ſelf-evident, were introduced into the ſchools, which being ſuch as all men allowed and agreed in, were looked on as general meaſures of truth, and ſerved inſtead of principles (where the diſputants had not laid down any other between them), beyond which there was no going, and which muſt not be receded from by either ſide. And thus theſe *maxims* getting the name of *principles*, beyond which men in diſpute could not retreat, were by miſtake taken to be the originals and ſources from whence all knowledge began, and the foundations whereon the ſciences were built; becauſe, when in their diſputes they came to any of theſe, they ſtopped there, and went no farther, the matter was determined. But how much this is a miſtake hath been already ſhown.

This method of the ſchools, which have been thought the fountains of knowledge, introduced, as I ſuppoſe, the like uſe of theſe maxims into a great part of converſation out of the ſchools, to ſtop the mouths of cavillers, whom any one is excuſed from arguing any longer with, when they deny theſe general ſelf-evident principles received by all reaſonable men who have once thought of them; but yet their uſe herein is but to put an end to wrangling. They in truth, when urged in ſuch caſes, teach nothing; that is already done by the intermediate *ideas* made uſe of in the debate, whoſe connection may be ſeen without the help of thoſe maxims, and ſo the truth is known before the maxim is produced, and the argument brought to a firſt principle. Men would give off a wrong argument before it came to that, if in their diſputes they propoſed to themſelves the finding and embracing of truth, and not a conteſt for victory;

and thus maxims have their use to put a stop to their perverseness, whose ingenuity should have yielded sooner; but the method of the schools having allowed and encouraged men to oppose and resist evident truth till they are baffled, *i. e.* till they are reduced to contradict themselves or some established principle, it is no wonder that they should not in civil conversation be ashamed of that which in the schools is counted a virtue and a glory, *viz.* obstinately to maintain that side of the question they have chosen, whether true or false, to the last extremity, even after conviction; a strange way to attain truth and knowledge; and that which I think the rational part of mankind, not corrupted by education, could scarce believe should ever be admitted amongst the lovers of truth, and students of religion or nature, or introduced into the seminaries of those who are to propagate the truths of religion or philosophy amongst the ignorant and unconvinced. How much such a way of learning is likely to turn young mens minds from the sincere search and love of truth, nay, and to make them doubt whether there is any such thing, or at least worth the adhering to, I shall not now inquire. This I think, that bating those places which brought the *peripatetic* philosophy into their schools, where it continued many ages, without teaching the world any thing but the art of wrangling, these maxims were nowhere thought the foundations on which the sciences were built, nor the great helps to the advancement of knowledge.

What use these general Maxims have.

As to these *general maxims*, therefore, they are, as I have said, of great *use* in disputes, *to stop the mouths of wranglers*, but not of much *use* to the discovery of unknown truths, or to help the mind forwards in its search after knowledge; for who ever began to build his knowledge on this general proposition, *what is, is*, or, *it is impossible for the same thing to be, and not to be*; and from either of these, as from a principle of science, deduced a *system* of useful knowledge?

Wrong opinions often involving contradictions, one of these maxims, as a touchstone, may *serve* well to show whither they lead; but yet, however fit to lay open the absurdity or mistake of a man's reasoning or opinion, they are of very little *use* for enlightening the understanding; and it will not be found that the mind receives much help from them in its progress in knowledge, which would be neither less, nor less certain, were these two *general propositions* never thought on. It is true, as I have said, they sometimes *serve* in argumentation to stop a wrangler's mouth, by showing the absurdity of what he saith, and by exposing him to the shame of contradicting what all the world knows, and he himself cannot but own to be true. But it is one thing to show a man that he is in an error, and another to put him in possession of truth; and I would fain know what truths these two propositions are able to teach, and by their influence make us know, which we did not know before, or could not know without them. Let us reason from them as well as we can, they are only about identical predications, and influence, if any at all, none but such. Each particular proposition concerning identity or diversity is as clearly and certainly known in itself, if attended to, as either of these general ones; only these general ones, as serving in all cases, are therefore more inculcated and insisted on. As to other less general maxims, many of them are no more than bare verbal propositions, and teach us nothing but the respect and import of names one to another. *The whole is equal to all its parts;* what real truth, I beseech you, does it teach us? What more is contained in that maxim than what the signification of the word *totum*, or the *whole*, does of itself import? and he that knows that the word *whole* stands for what is made up of all its parts, knows very little less than that the *whole* is equal to all its *parts*: And upon the same ground, I think that this proposition, *a hill is higher than a valley*, and several the like, may also pass for maxims; but yet masters of *mathematics*, when they would, as teachers of what

they know, initiate others in that ſcience, do not without reaſon place this, and ſome other ſuch maxims, at the entrance of their *ſyſtems;* that their ſcholars, having in the beginning perfectly acquainted their thoughts with theſe propoſitions made in ſuch general terms, may be uſed to make ſuch reflections, and have theſe more general propoſitions, as formed rules and ſayings, ready to apply to all particular caſes; not that if they be equally weighed, they are more clear and evident than the particular inſtances they are brought to confirm, but that, being more familiar to the mind, the very naming them is enough to ſatisfy the underſtanding. But this, I ſay, is more from our cuſtom of uſing them, and the eſtabliſhment they have got in our minds by our often thinking of them, than from the different evidence of the things; but before cuſtom has ſettled methods of thinking and reaſoning in our minds, I am apt to imagine it is quite otherwiſe; and that the child, when a part of his apple is taken away, knows it better in that particular inſtance, than by this general propoſition, *the whole is equal to all its parts;* and that if one of theſe have need to be confirmed to him by the other, the general has more need to be let into his mind by the particular, than the particular by the general; for in particulars our knowledge begins, and ſo ſpreads itſelf by degrees to generals; though afterwards the mind takes the quite contrary courſe, and having drawn his knowledge into as general propoſitions as it can, makes thoſe familiar to its thoughts, and accuſtoms itſelf to have recourſe to them, as to the ſtandards of truth and falſehood: By which familiar *uſe of them*, as rules to meaſure the truth of other propoſitions, it comes in time to be thought, that more particular propoſitions have their truth and evidence from their conformity to theſe more general ones, which in diſcourſe and argumentation, are ſo frequently urged, and conſtantly admitted; and this I think to be the reaſon why amongſt ſo many ſelf-evident propoſitions, the moſt general only have had the title of maxims.

§ 12. *Maxims, if Care be not taken in the Uſe of words, may prove Contradictions.*

One thing farther, I think, it may not be amiſs to obſerve concerning theſe general maxims, that they are ſo far from improving or eſtabliſhing our minds in true knowledge, that if our notions be wrong, looſe, or unſteady, and we reſign up our thoughts to the ſound of words, rather than fix them on ſettled determined *ideas* of things; I ſay theſe *general maxims* will *ſerve* to confirm us in miſtakes, and in ſuch a way of uſe of words, which is moſt common, will ſerve to prove contradictions; *v. g.* he that, with *Des Cartes*, ſhall frame in his mind an *idea* of what he calls *body*, to be nothing but extenſion, may eaſily demonſtrate that there is no *vacuum*, i. e. no ſpace void of body, by this *maxim*, *what is, is*; for the *idea* to which he annexes the name *body* being bare extenſion, his knowledge that ſpace cannot be without body is certain; for he knows his own *idea* of extenſion clearly and diſtinctly, and knows that it is *what it is*, and not another *idea*, though it be called by theſe three names, *extenſion*, *body*, *ſpace*, which three words, ſtanding for one and the ſame *idea*, may no doubt, with the ſame evidence and certainty, be affirmed one of another, as each of itſelf; and it is as certain, that whilſt I uſe them all to ſtand for one and the ſame *idea*, this predication is as true and identical in its ſignification, *that ſpace is body*, as this predication is true and identical, *that body is body*, both in ſignification and ſound.

§ 13. *Inſtance in* Vacuum.

But if another ſhall come, and make to himſelf another *idea* different from *Des Cartes's*, of the thing, which yet, with *Des Cartes*, he calls by the ſame name *body*, and make his *idea*, which he expreſſes by the word *body* to be of a thing that hath both *extenſion* and *ſolidity* together; he will as eaſily demonſtrate, that there may be a *vacuum* or ſpace without a body, as *Des Cartes* demonſtrated the contrary; becauſe the *idea* to which he gives the name *ſpace* be-

ing barely the ſimple one of *extenſion*, and the *idea* to which he gives the name *body* being the complex *idea* of *extenſion* and *reſiſtibility*, or *ſolidity*, together in the ſame ſubject, theſe two *ideas* are not exactly one and the ſame, but in the underſtanding as diſtinct as the *ideas* of one and two, white and black, or as of *corporeity* and *humanity*, if I may uſe thoſe barbarous terms; and therefore the predication of them in our minds, or in words ſtanding for them, is not identical, but the negation of them one of another; *viz.* this propoſition, extenſion or *ſpace is not body*, is as true and evidently certain as this maxim, *it is impoſſible for the ſame thing to be, and not to be*, can make any propoſition.

§ 14. *They prove not the Exiſtence of Things without us.*

But yet, though both theſe propoſitions (as you ſee) may be equally demonſtrated, *viz.* that there may be a *vacuum*, and that there cannot be a *vacuum* by theſe two certain principles, viz. *what is, is*, and *the ſame thing cannot be, and be*; yet neither of theſe principles will ſerve to prove to us, that any, or what bodies do exiſt; for that we are left to our ſenſes to diſcover to us as far as they can; thoſe univerſal and ſelf-evident principles being only our conſtant, clear, and diſtinct knowledge of our own *ideas*, more general or comprehenſive, can aſſure us of nothing that paſſes without the mind; their certainty is founded only upon the knowledge we have of each *idea* by itſelf, and of its diſtinction from others, about which we cannot be miſtaken whilſt they are in our minds, though we may and often are miſtaken when we retain the names without the *ideas*, or uſe them confuſedly ſometimes for one, and ſometimes for another *idea*; in which caſes the force of theſe *axioms*, reaching only to the ſound, and not the ſignification of the words, *ſerves* only to lead us into confuſion, miſtake, and error. It is to ſhow men, that theſe maxims, however cried up for the great guards of truth, will not ſecure them from error in a careleſs looſe uſe of

their words, that I have made this remark. In all that is here suggested concerning the little use for the improvement of knowledge, or dangerous use in undetermined *ideas*, I have been far enough from saying or intending they should be *laid aside*, as some have been too forward to charge me. I affirm them to be truths, self-evident truths, and so cannot be *laid aside*. As far as their influence will reach, it is in vain to endeavour, nor would I attempt to abridge it; but yet, without any injury to truth or knowledge, I may have reason to think their use is not answerable to the great stress which seems to be laid on them, and I may warn men not to make an ill use of them, for the confirming themselves in errors.

§ 15. *Their Application dangerous about complex* Ideas.

But let them be of what use they will in verbal propositions, they cannot discover or prove to us the least knowledge of the nature of substances, as they are found and exist without us, any farther than grounded on experience; and though the consequence of these two propositions, called principles, be very clear, and their *use* not dangerous or hurtful, in the probation of such things wherein there is no need at all of them for proof, but such as are clear by themselves without them, *viz.* where our *ideas* are determined, and known by the names that stand for them; yet when these principles, *viz. what is, is*, and *it is impossible for the same thing to be, and not to be*, are made use of in the probation of propositions, wherein are words standing for complex *ideas*, v. g. *man, horse, gold, virtue*, there they are of infinite danger, and most commonly make men receive and retain falsehood for manifest truth, and uncertainty for demonstration; upon which follows error, obstinacy, and all the mischiefs that can happen for wrong reasoning; the reason whereof is not that these principles are less true, or of less force in proving propositions made of terms standing for complex *ideas*, than where the propositions are about simple *ideas*; but because men mistake

generally, thinking that where the ſame terms are preſerved, the propoſitions are about the ſame things, though the *ideas* they ſtand for are in truth different; therefore theſe maxims are made uſe of to ſupport thoſe, which in ſound and appearance are contradictory propoſitions; as is clear in the demonſtrations above-mentioned about a *vacuum*. So that whilſt men take words for things, as uſually they do, theſe maxims may and do commonly ſerve to prove contradictory propoſitions, as ſhall yet be farther made manifeſt.

§ 16. *Inſtance in Man.*

For inſtance; let *man* be that concerning which you would by theſe firſt principles demonſtrate any thing, and we ſhall ſee, that ſo far as demonſtration is by theſe principles, it is only verbal, and gives us no certain univerſal true propoſition, or knowledge of any being exiſting without us. Firſt, a child having framed the *idea* of a *man*, it is probable that his *idea* is juſt like that picture, which the painter makes of the viſible appearances joined together; and ſuch a complication of *ideas* together in his underſtanding, makes up the ſingle complex *idea* which he calls *man*, whereof white or fleſh-colour in *England* being one, the child can demonſtrate to you that *a Negro is not a man*, becauſe white colour was one of the conſtant ſimple *ideas* of the complex *idea* he calls *man*: and therefore he can demonſtrate by the principle, *it is impoſſible for the ſame thing to be, and not to be*, that a *negro is not a man*; the foundation of his certainty being not that univerſal propoſition, which perhaps he never heard nor thought of, but the clear diſtinct perception he hath of his own ſimple *ideas* of black and white, which he cannot be perſuaded to take, nor can ever miſtake one for another, whether he knows that maxim or no: and to this child, or any one who hath ſuch an *idea*, which he calls *man*, can you never demonſtrate that a *man* hath a ſoul, becauſe his *idea* of *man* includes no ſuch notion or *idea* in it; and therefore to him the principle of *what is, is*, proves not this

matter; but it depends upon collection and observation, by which he is to make his complex *idea* called *man*.

§ 17.

Secondly, another that hath gone farther in framing and collecting the *idea* he calls *man*, and to the outward ſhape adds *laughter* and *rational diſcourſe*, may demonſtrate that infants and changelings are no men, by this maxim, *it is impoſſible for the ſame thing to be, and not to be:* and I have diſcourſed with very rational men, who have actually denied that they are *men*.

§ 18.

Thirdly, perhaps another makes up the complex *idea* which he calls *man*, only out of the *ideas* of body in general, and the powers of language and reaſon, and leaves out the ſhape wholly. This man is able to demonſtrate, that a man may have no hands, but be *quadrupes*, neither of thoſe being included in his *idea* of *man;* and in whatever body or ſhape he found *ſpeech* and *reaſon* joined, that was a *man;* becauſe having a clear knowledge of ſuch a complex *idea*, it is certain that *what is, is*.

§ 19. *Little Uſe of theſe Maxims in Proofs where we have clear and diſtinct* Ideas.

So that, if rightly conſidered, I think we may ſay, that where our *ideas* are determined in our minds, and have annexed to them by us known and ſteady names under thoſe ſettled determinations, there is *little need* or *no uſe* at all of theſe *maxims*, to prove the agreement or diſagreement of any of them. He that cannot diſcern the truth or falſehood of ſuch propoſitions, without the help of theſe and the like maxims, will not be *helped* by theſe maxims to do it; ſince he cannot be ſuppoſed to know the truth of theſe maxims themſelves without proof, if he cannot know the truth of others without proof, which are as ſelf-evident as theſe. Upon this ground it is that intuitive knowledge neither requires nor admits any proof, one part of it more than another. He that will ſuppoſe it does, takes away the foundation of all knowledge and cer-

tainty; and he that needs any proof to make him certain, and give his assent to this proposition, that *two are equal to two*, will also have need of a proof to make him admit, that *what is is*. He that needs a probation to convince him, that *two are not three*, that *white is not black*, that a *triangle is not a circle*, &c. or any other two determined distinct *ideas* are not one and the same, will need also a demonstration to convince him that it is impossible *for the same thing to be, and not to be*.

§ 20. *Their Use dangerous where our* Ideas *are confused.*

AND as these maxims are of *little use*, where we have determined *ideas*, so they are, as I have showed, of *dangerous use*, where our *ideas* are not determined, and where we use words that are not annexed to determined *ideas*, but such as are of a loose and wandering signification, sometimes standing for one, and sometimes for another *idea*; from which follows mistake and error, which these maxims (brought as proofs to establish propositions, wherein the terms stand for undetermined *ideas*) do by their authority confirm and rivet.

CHAP. VIII.

OF TRIFLING PROPOSITIONS.

§ 1. *Some Propositions bring no Increase to our knowledge.*

WHETHER the maxims treated of in the foregoing chapter, be of that use to real knowledge, as is generally supposed, I leave to be considered. This I think may confidently be affirmed, that there are universal propositions, which, though they be certainly true, yet they add no light to our understandings, bring no increase to our knowledge. Such are,

§ 2. *As first, Identical Propositions.*

FIRST, All purely identical propositions. These obviously, and at first blush, appear to contain no instruc-

tion in them; for when we affirm the said term of itself, whether it be barely verbal, or whether it contains any clear and real *idea*, it shows us nothing but what we must certainly know before, whether such a proposition be either made by or proposed to us. Indeed that most general one, *what is is*, may serve sometimes to show a man the absurdity he is guilty of, when by circumlocution, or equivocal terms, he would in particular instances deny the same thing of itself; because nobody will so openly bid defiance to common sense, as to affirm visible and direct contradictions in plain words; or if he does, a man is excused if he breaks off any farther discourse with him. But yet I think I may say, that neither that received maxim, nor any other identical proposition, teaches us any thing; and though in such kind of propositions, this great and magnified maxim, boasted to be the foundation of demonstration, may be, and often is made use of to confirm them, yet all it proves amounts to no more than this, that the same word may with great certainty be affirmed of itself, without any doubt of the truth of any such proposition, and let me add also, without any real knowledge.

§ 3.

For at this rate, any very ignorant person who can but make a proposition, and knows what he means when he says, *ay* or *no*, may make a million of propositions, of whose truths he may be infallibly certain, and yet not know one thing in the world thereby; *v. g.* what is a soul is a soul; or *a soul is a soul; a spirit is a spirit; a feitiche is a feitiche*, &c. These all being equivalent to this proposition, *viz. what is is*, i. e. *what hath existence hath existence*; or, *who hath a soul hath a soul.* What is this more than trifling with words? It is but like a monkey shifting his oyster from one hand to the other; and had he had but words, might, no doubt, have said, oyster in right hand is *subject*, and oyster in left hand is *predicate*; and so might have made a self-evident proposition of oyster, *i. e. oyster is oyster*; and yet, with all this,

not have been one whit the wiser or more knowing: and that way of handling the matter would much at once have satisfied the monkey's hunger, or a man's understanding; and they two would have improved in knowledge and bulk together.

I know there are some, who because *identical propositions* are self-evident, show a great concern for them, and think they do great service to philosophy by crying them up, as if in them was contained all knowledge, and the understanding were led into all truth by them only. I grant, as forwardly as any one, that they are all true and self-evident. I grant, farther, that the foundation of all our knowledge lies in the faculty we have of perceiving the same *idea* to be the same, and of discerning it from those that are different, as I have shown in the foregoing chapter. But how that vindicates the making use of *identical propositions*, for the improvement of knowledge, from the imputation of trifling, I do not see. Let any one repeat, as often as he pleases, that the *will is the will*, or lay what stress on it he thinks fit, of what use is this, and an infinite the like propositions, for the enlarging our knowledge? Let a man abound as much as the plenty of words which he has will permit him in such propositions as these; *a law is a law*, and *obligation is obligation; right is right*, and *wrong is wrong:* will these and the like ever help him to an acquaintance with *ethics?* or instruct him or others in the knowledge of *morality?* Those who know not, nor perhaps ever will know, what is *right* and what is *wrong*, nor the measures of them, can with as much assurance make, and infallibly know the truth of these and all such propositions, as he that is best instructed in *morality* can do. But what advance do such propositions give in the knowledge of any thing necessary or useful for their conduct?

He would be thought to do little less than trifle, who, for the enlightening the understanding in any part of knowledge, should be busy with *identical propositions*, and insist on such maxims as these: *sub-*

ſtance is ſubſtance, and *body is body; a vacuum is a vacuum*, and *a vortex is a vortex; a centaur is a centaur*, and *a chimera is a chimera*, &c.; for theſe and all ſuch are equally true, equally certain, and equally ſelf-evident; but yet they cannot but be counted trifling, when made uſe of as principles of inſtruction, and ſtreſs laid on them, as helps to knowledge; ſince they teach nothing but what every one, who is capable of diſcourſe, knows without being told, *viz.* that the ſame term is the ſame term, and the ſame idea the ſame idea. And upon this account it was that I formerly did, and do ſtill think, the offering and inculcating ſuch propoſitions, in order to give the underſtanding any new light or inlet into the knowledge of things, no better than trifling.

Inſtruction lies in ſomething very different; and he that would enlarge his own, or another's mind, to truths he does not yet know, muſt find out intermediate *ideas*, and then lay them in ſuch order one by another, that the underſtanding may ſee the agreement or diſagreement of thoſe in queſtion. Propoſitions that do this are inſtructive; but they are far from ſuch as affirm the ſame term of itſelf; which is no way to advance one's ſelf or others in any ſort of knowledge. It no more helps to that, than it would help any one in his learning to read, to have ſuch propoſitions as theſe inculcated to him, *an* A *is an* A, and *a* B *is a* B; which a man may know as well as any ſchoolmaſter, and yet never be able to read a word as long as he lives. Nor do theſe, or any ſuch identical propoſitions, help him one jot forward in the ſkill of reading, let him make what uſe of them he can.

If thoſe who blame my calling them *trifling propoſitions*, had but read, and been at the pains to underſtand what I had above writ in very plain *Engliſh*, they could not but have ſeen that by *identical propoſitions*, I mean only ſuch wherein the ſame term importing the ſame *idea*, is affirmed of itſelf; which I take to be the proper ſignification of *identical propoſitions*; and concerning all ſuch, I think I may continue ſafely

to say, that to propose them as instructive, is no better than trifling; for no one who has the use of reason can miss them, where it is necessary they should be taken notice of, nor doubt of their truth, when he does take notice of them.

But if men will call propositions *identical*, wherein the same term is not affirmed of itself, whether they speak more properly than I, others must judge. This is certain, all that they say of propositions that are not *identical* in my sense, concerns not me, nor what I have said; all that I have said relating to those propositions wherein the same term is affirmed of itself; and I would fain see an instance, wherein any such can be made use of, to the advantage and improvement of any one's knowledge. Instances of other kinds, whatever use may be made of them, concern not me, as not being such as I call *identical*.

§ 4. *Secondly, When a Part of any Complex* Idea *is predicated of the whole.*

Secondly, Another sort of trifling propositions is, *when a part of the complex* idea *is predicated of the name of the whole*, a part of the definition of the word defined. Such are all propositions wherein the *genus* is predicated of the *species*, or more comprehensive or less comprehensive terms; for what information, what knowledge carries this proposition in it, *viz. lead is a metal*, to a man who knows the complex *idea* the name *lead* stands for? all the simple *ideas* that go to the complex one signified by the term *metal*, being nothing but what he before comprehended, and signified by the name *lead*. Indeed, to a man that knows the signification of the word *metal*, and not of the word *lead*, it is a shorter way to explain the signification of the word *lead*, by saying it is a *metal*, which at once expresses several of its simple *ideas*, than to enumerate them one by one, telling him it is a body very *heavy, fusible and malleable*.

§ 5. *As Part of the Definition of the Terms defined.*

Alike trifling it is, *to predicate any other part of the definition of the term defined*, or to affirm any one of

the simple *ideas* of a complex one, of the name of the whole complex *idea*; as *all gold is fusible*; for *fusibility* being one of the simple *ideas* that goes to the making up the complex one the sound *gold* stands for, what can it be but playing with sounds, to affirm that of the name *gold*, which is comprehended in its received signification? It would be thought little better than ridiculous, to affirm gravely as a truth of moment, that *gold is yellow*; and I see not how it is any jot more material to say, *it is fusible*, unless that quality be left out of the complex *idea*, of which the sound *gold* is the mark in ordinary speech. What instruction can it carry with it, to tell one that which he hath been told already, or he is supposed to know before? For I am supposed to know the signification of the word another uses to me, or else he is to tell me. And if I know that the name *gold* stands for this complex *idea* of *body, yellow, heavy, fusible, malleable*, it will not much instruct me to put it solemnly afterwards in a proposition, and gravely say, *all gold is fusible*. Such propositions can only serve to show the disingenuity of one, who will go from the definition of his own terms, by reminding him sometimes of it; but carry no knowledge with them, but of the signification of words, however certain they be.

§ 6. *Instance—Man and Palfry.*

Every man is an animal, or living body, is as certain a proposition as can be; but no more conducing to the knowledge of things than to say, *a palfry is an ambling horse*, or a neighing ambling *animal*, both being only about the signification of words, and make me know but this, that *body*, *sense*, and *motion*, or power of sensation and moving, are three of those *ideas* that I always comprehend and signify by the word *man*, and where they are not to be found together, the name *man* belongs not to that thing; and so of the other, that *body*, *sense*, and *a certain way of going*, with *a certain kind of voice*, are some of those *ideas* which I always comprehend, and signify by the word *palfry*; and when they are not to be found to-

gether, the name *palfry* belongs not to that thing. It is just the same, and to the same purpose, when any term standing for any one or more of the simple *ideas* that altogether make up that complex *idea* which is called a *man*, is affirmed of the term *man*; *v. g.* suppose a *Roman* signified by the word *homo*, all these distinct *ideas*, united in one subject, *corporietas, sensibilitas, potentia, se movendi, rationalitas, risibilitas*; he might, no doubt, with great certainty, universally affirm one, more, or all of these together, of the word *homo*, but did no more than say that the word *homo*, in his country, comprehended in its signification all these *ideas*. Much like a romance knight, who by the word *palfry* signified these *ideas*; *body of a certain figure, four-legged, with sense, motion, ambling, neighing, white, used to have a woman on his back*, might with the same certainty universally affirm also any or all of these of the word *palfry*; but did thereby teach no more, but that the word *palfry*, in his or romance language, stood for all these, and was not to be applied to any thing, where any of these was wanting. But he that shall tell me, that in whatever thing *sense, motion, reason, laughter*, were united, that thing had actually a notion of GOD, or would be cast into a sleep by *opium*, made indeed an instructive proposition, because neither *having the notion of GOD*, nor *being cast into sleep by opium*, being contained in the *ideas* signified by the word *man*, we are by such propositions taught something more than barely what the word *man* stands for, and therefore the knowledge contained in it is more than *verbal*.

§ 7. *For this teaches but the Signification of Words.* BEFORE a man makes any proposition, he is supposed to understand the terms he uses in it, or else he talks like a parrot, only making a noise by imitation, and framing certain sounds which he has learnt of others, but not as a rational creature, using them for signs of *ideas* which he has in his mind. The hearer also is supposed to understand the terms as the speaker uses them, or else he talks jargon, and makes an unintel-

ligible noise; and therefore he trifles with words, who makes such a proposition, which when it is made, contains no more than one of the terms does, and which a man was supposed to know before; *v. g. a triangle hath three sides*, or *saffron is yellow*. And this is no farther intolerable than where a man goes to explain his terms to one who is supposed, or declares himself not to understand him; and then *it teaches only the signification of that word*, and the use of that sign.

§ 8. *But no real Knowledge.*

We can know then the truth of two sorts of propositions with perfect *certainty*; the one is, of those trifling propositions which have a certainty in them, but it is only a *verbal certainty*, not instructive. And, secondly, we can know the truth, and so may be *certain* in propositions which affirm something of another, which is a necessary consequence of its precise complex *idea*, but not contained in it; as that the *external angle of all triangles is bigger than either of the opposite internal angles*; which relation of the outward angle to either of the opposite internal angles, making no part of the complex *idea* signified by the name triangle, this is a real truth, and conveys with it instructive *real knowledge*.

§ 9. *General Propositions concerning Substances are often trifling.*

We have little or no knowledge of what combinations there be of simple *ideas* existing together in substances, but by our senses; we cannot make any universal *certain* propositions concerning them, any farther than our nominal essences lead us, which being to a very few and inconsiderable truths, in respect of those which depend on the real constitutions, the general *propositions* that are made *about substances, if they are certain, are for the most part but trifling*, and if they are instructive are uncertain, and such as we can have no knowledge of their real truth, how much soever constant observation and analogy may assist our judgments in guessing. Hence it comes to pass, that

one may often meet with very clear and coherent discourses, that amount yet to nothing. For it is plain, that names of substantial beings, as well as others, as far as they have relative significations affixed to them, may, with great truth, be joined negatively and affirmatively in propositions, as their relative definitions make them fit to be so joined; and propositions consisting of such terms, may, with the same clearness, be deduced one from another, as those that convey the most real truths; and all this, without any knowledge of the nature or reality of things existing without us. By this method one may make demonstrations and undoubted propositions in words, and yet thereby advance not one jot in the knowledge of the truth of things; *v. g.* he that having learnt these following words, with their ordinary mutual relative acceptations annexed to them; *v. g. substance, man, animal, form, soul, vegetative, sensitive, rational,* may make several undoubted propositions about the soul, without knowing at all what the soul really is; and of this sort, a man may find an infinite number of propositions, reasonings, and conclusions, in books of metaphysics, school-divinity, and some sorts of natural philosophy, and, after all, know as little of GOD, *spirits*, or *bodies*, as he did before he set out.

§ 10. *And why.*

He that hath liberty to define, *i. e.* determine the signification of his names of substances (as certainly every one does in effect, who makes them stand for his own *ideas*), and makes their significations at a venture, taking them from his own or other mens fancies, and not from an examination or inquiry into the nature of things themselves, may, with little trouble, demonstrate them one of another, according to those several respects and mutual relations he has given them one to another; wherein, however things agree or disagree in their own nature, he needs mind nothing but his own notions, with the names he hath bestowed upon them; but thereby no more increases his own knowledge, than he does his riches, who taking a bag

of counters, calls one in a certain place a *pound*, another in another place a *shilling*, and a third in a third place a *penny*; and so proceeding, may undoubtedly reckon right, and cast up a great sum, according to his counters so placed, and standing for more or less as he pleases, without being one jot the richer, or without even knowing how much a pound, shilling, or penny is, but only that one is contained in the other twenty times, and contains the other twelve; which a man may also do in the signification of words, by making them, in respect of one another, more or less, or equally comprehensive.

§ 11. *Thirdly, Using Words variously is trifling with them.*

THOUGH yet concerning most words used in discourses, especially argumentative and controversial, there is this more to be complained of, which is the worst sort of *trifling*, and which sets us yet farther from the certainty of knowledge we hope to attain by them, or find in them, *viz.* that most writers are so far from instructing us in the nature and knowledge of things, that they *use their words loosely* and uncertainly, and do not, by using them constantly and steadily in the same significations, make plain and clear deductions of words one from another, and make their discourses coherent and clear (how little soever it were instructive), which were not difficult to do, did they not find it convenient to shelter their ignorance or obstinacy under the obscurity and perplexedness of their terms; to which, perhaps, inadvertency and ill custom do in many men much contribute.

§ 12. *Marks of verbal Propositions.*

To conclude; *barely verbal propositions* may be known by these following *marks*:

1. *Predication in abstract.*

FIRST, All propositions, wherein two abstract terms are affirmed one of another, are barely about the signification of sounds. For since no abstract idea can be the same with any other but itself, when its abstract name is affirmed of any other term, it can signify no

more but this, that it may or ought to be called by that name, or that these two names signify the same *idea*. Thus should any one say that *parsimony is frugality*, that *gratitude is justice*, that this or that action is or is not *temperance*, however specious these and the like propositions may at first sight seem, yet when we come to press them, and examine nicely what they contain, we shall find that it all amounts to nothing but the signification of those terms.

§ 13. 2. *A part of the Definition predicated of any Term.*

SECONDLY, All *propositions wherein a part of the complex* idea which any term stands for, *is predicated of that term, are only* verbal, *v. g.* to say that *gold is a metal* or *heavy*. And thus all propositions, wherein more comprehensive words, called *genera*, are *affirmed* of subordinate or less comprehensive, called *species*, or *individuals*, are barely verbal.

When, by these two rules, we have examined the propositions that make up the discourses we ordinarily meet with both in and out of books, we shall, perhaps, find that a greater part of them than is usually suspected, are purely about the signification of words, and contain nothing in them but the use and application of these signs.

This, I think, I may lay down for an infallible rule, that wherever the distinct *idea* any word stands for is not known and considered, and something not contained in the *idea* is not affirmed or denied of it, there our thoughts stick wholly in sounds, and are able to attain no real truth or falsehood. This, perhaps, if well heeded, might save us a great deal of useless amusement and dispute, and very much shorten our trouble and wandering, in the search of real and true knowledge.

CHAP. IX.

OF OUR KNOWLEDGE OF EXISTENCE.

§ 1. *General certain Propositions concern not Existence.*

HITHERTO we have only considered the essences of things, which being only abstract *ideas*, and thereby removed in our thoughts from particular existence (that being the proper operations of the mind, in abstraction, to consider an *idea* under no other existence but what it has in the understanding), gives us no knowledge of real existence at all. Where, by the way, we may take notice, that *universal propositions*, of whose truth or falsehood we can have certain knowledge, concern not *existence*; and farther, that all *particular affirmations or negations*, that would not be certain if they were made general, are only concerning *existence*; they declaring only the accidental union or separation of *ideas* in things existing, which in their abstract natures, have no known necessary union or repugnancy.

§ 2. *A threefold Knowledge of Existence.*

BUT leaving the nature of propositions, and different ways of predication, to be considered more at large in another place, let us proceed now to inquire concerning our knowledge of the *existence* of things, and how we come by it. I say then, that we have the knowledge of *our own existence* by intuition; of the *existence of God* by demonstration; and of other things by sensation.

§ 3. *Our Knowledge of our own Existence is intuitive.*

As for *our own existence*, we perceive it so plainly, and so certainly, that it neither needs, nor is capable of any proof; for nothing can be more evident to us than our own existence. *I think, I reason, I feel pleasure and pain*; can any of these be more evident to

me than my own existence? If I doubt of all other things, that very doubt makes me perceive my own *existence*, and will not suffer me to doubt of that; for if I know *I feel pain*, it is evident I have as certain perception of my own existence as of the existence of the pain I feel; or, if I know *I doubt*, I have as certain perception of the existence of the thing doubting, as of that thought which I call *doubt*. Experience then convinces us, that *we have an intuitive knowledge of our own existence*, and an internal infallible perception that we are. In every act of sensation, reasoning or thinking, we are conscious to ourselves of our own being, and, in this matter, come not short of the highest degree of *certainty*.

CHAP. X.

OF OUR KNOWLEDGE OF THE EXISTENCE OF A GOD.

§ 1. *We are capable of knowing certainly that there is a God.*

THOUGH God has given us no innate *ideas* of himself, though he has stamped no original characters on our minds, wherein we may read his being; yet having furnished us with those faculties our minds are endowed with, he hath not left himself without witness, since we have sense, perception and reason, and cannot want a clear proof of him, as long as we carry ourselves about us; nor can we justly complain of our ignorance in this great point, since he has so plentifully provided us with the means to discover, and know him, so far as is necessary to the end of our being, and the great concernment of our happiness. But though this be the most obvious truth that reason discovers, and though its evidence be (if I mistake not) equal to mathematical certainty, yet it requires thought and attention, and the mind must apply itself to a regular deduction of it from some part of our intuitive knowledge, or else we shall

be as uncertain and ignorant of this as of other propositions, which are in themselves capable of clear demonstration. To show, therefore, that we are capable of *knowing*, i. e. *being certain that there is a God*, and how we may come by this certainty, I think we need go no farther than ourselves, and that undoubted knowledge we have of our own existence.

§ 2. *Man knows that he himself is.*

I THINK it is beyond question, that *man has a clear perception of his own being;* he knows certainly that he exists, and that he is something. He that can doubt whether he be any thing or no, I speak not to, no more than I would argue with pure nothing, or endeavour to convince non-entity, that it were something. If any one pretends to be so sceptical as to deny his own existence (for really to doubt of it is manifestly impossible), let him for me enjoy his beloved happiness of being nothing, until hunger or some other pain convince him of the contrary. This then, I think, I may take for a truth, which every one's certain knowledge assures him of, beyond the liberty of doubting, viz. that he is something that actually exists.

§ 3. *He knows also that nothing cannot produce a Being, therefore something eternal.*

IN the next place, man knows by an intuitive certainty, that bare *nothing can no more produce any real being, than it can be equal to two right angles.* If a man knows not that non-entity, or the absence of all being, cannot be equal to two right angles, it is impossible he should know any demonstration in Euclid. If, therefore, we know there is some real being, and that non-entity cannot produce any real being, it is an evident demonstration, that from eternity there has been something, since what was not from eternity had a beginning, and what had a beginning must be produced by something else.

§ 4. *That eternal Being must be most powerful.*

NEXT, it is evident, that what had its being and beginning from another, must also have all that which is

in and belongs to its being from another too. All the powers it has must be owing to and received from the same source. This eternal source, then, of all being, must also be the source and original of all power; and so *this eternal Being must be also the most powerful.*

§ 5. *And most knowing.*

AGAIN, a man finds in himself *perception* and *knowledge*. We have then got one step farther; and we are certain now that there is not only some being, but some knowing intelligent being in the world.

There was a time, then, when there was no knowing being, and when knowledge began to be; or else there has been also *a knowing being from eternity*. If it be said there was a time when no being had any knowledge, when that eternal Being was void of all understanding, I reply, that then it was impossible there should ever have been any knowledge; it being as impossible that things wholly void of knowledge, and operating blindly, and without any perception, should produce a knowing being, as it is impossible that a triangle should make itself three angles bigger than two right ones; for it is as repugnant to the *idea* of senseless matter, that it should put into itself sense, perception and knowledge, as it is repugnant to the *idea* of a triangle, that it should put into itself greater angles than two right ones.

§ 6. *And therefore GOD.*

THUS, from the consideration of ourselves, and what we infallibly find in our own constitutions, our reason leads us to the knowledge of this certain and evident truth, that *there is an eternal, most powerful, and most knowing being*, which whether any one will please to call *God*, it matters not. The thing is evident, and from this *idea* duly considered, will easily be deduced all those other attributes, which we ought to ascribe to this eternal Being. If, nevertheless, any one should be found so senseless arrogant, as to suppose man alone knowing and wise, but yet the product of mere ignorance and chance; and that all the rest of the uni-

verse acted only by that blind hap-hazard; I shall leave with him that very rational and emphatical rebuke of *Tully*, *l.* 2. *de leg.* to be considered at his leisure. "What can be more sillily arrogant and misbecoming "than for a man to think that he has a mind and un- "derstanding in him, but yet in all the universe be- "sides there is no such thing? Or that those things, "which with the utmost stretch of his reason he can "scarce comprehend, should be moved and managed "without any reason at all?" *Quid est enim verius, quam neminem esse oportere tam stulte arrogantem, ut in se mentem et rationem putet inesse, in cœlo mundoque non putet? Aut ea quæ vix summa ingenii ratione comprehendat, nulla ratione moveri putet?*

From what has been said, it is plain to me, we have a more certain knowledge of the existence of a God, than of any thing our senses have not immediately discovered to us. Nay, I presume I may say, that we more certainly know that there is a God than that there is any thing else without us. When I say we *know*, I mean there is such a knowledge within our reach, which we cannot miss, if we will but apply our minds to that, as we do to several other inquiries.

§ 7. *Our* Idea *of a most perfect Being not the sole Proof of a God.*

How far the idea *of a most perfect being*, which a man may frame in his mind, does or does not prove the *existence of a God*, I will not here examine; for, in the different make of mens tempers, and application of their thoughts, some arguments prevail more on one, and some on another, for the confirmation of the same truth. But yet, I think, this I may say, that it is an ill way of establishing this truth, and silencing atheists, to lay the whole stress of so important a point as this, upon that sole foundation, and take some mens having that *idea* of God in their minds (for it is evident some men have none, and some worse than none, and the most very different) for the only proof of a Deity; and out of an over-fondness of that darling invention, cashier, or at least endeavour to invalidate all other

arguments, and forbid us to hearken to those proofs, as being weak or fallacious, which our own existence, and the sensible parts of the universe, offer so clearly and cogently to our thoughts, that I deem it impossible for a considering man to withstand them. For I judge it is as certain and clear a truth as can any where be delivered, that *the invisible things of God are clearly seen from the creation of the world, being understood by the things that are made, even his eternal power and Godhead.* Though our own being furnishes us, as I have shown, with an evident and incontestible proof of a Deity, (and I believe nobody can avoid the cogency of it, who will but as carefully attend to it as to any other demonstration of so many parts) yet this being so fundamental a truth, and of that consequence, that all religion and genuine morality depend thereon, I doubt not but I shall be forgiven by my reader if I go over some parts of this argument again, and enlarge a little more upon them.

§ 8. *Something from Eternity.*

THERE is no truth more evident than that *something* must be *from eternity*. I never yet heard of any one so unreasonable, or that could suppose so manifest a contradiction, as a time wherein there was perfectly nothing; this being of all absurdities the greatest, to imagine that pure nothing, the perfect negation and absence of all beings, should ever produce any real existence.

It being then unavoidable for all rational creatures to conclude that something has existed from eternity, let us next see what kind of thing that must be.

§ 9. *Two sorts of Beings, cogitative and incogitative.*

THERE are but two sorts of beings in the world, that man knows or conceives.

First, Such as are purely material, without sense, perception or thought, as the clippings of our beards, and parings of our nails.

Secondly, Sensible, thinking, perceiving beings, such as we find ourselves to be, which, if you please, we

will hereafter call *cogitative* and *incogitative* beings; which to our present purpose, if for nothing else, are perhaps better terms than material and immaterial.

§ 10. *Incogitative Being cannot produce a Cogitative.*

If, then, there must be something eternal, let us see what sort of being it must be. And to that, it is very obvious to reason, that it must necessarily be a *cogitative* being; for it is as impossible to conceive, that ever bare incogitative matter should produce a thinking intelligent being, as that nothing should of itself produce matter. Let us suppose any parcel of matter eternal, great or small, we shall find it, in itself, able to produce nothing: For example, let us suppose the matter of the next pebble we meet with eternal, closely united, and the parts firmly at rest together, if there were no other being in the world, must it not eternally remain so, a dead inactive lump? Is it possible to conceive it can add motion to itself, being purely matter, or produce any thing? Matter, then, by its own strength, cannot produce in itself so much as motion: the motion it has must also be from eternity, or else be produced, and added to matter by some other being more powerful than matter; matter, as is evident, having not power to produce motion in itself. But let us suppose motion eternal too; yet matter, *incogitative matter* and motion, whatever changes it might produce of figure and bulk, *could never produce thought*: Knowledge will still be as far beyond the power of motion and matter to produce, as matter is beyond the power of *nothing*, or *non-entity*, to produce; and I appeal to every one's own thoughts, whether he cannot as easily conceive matter produced by *nothing*, as thought to be produced by pure matter, when before there was no such thing as thought or an intelligent being existing. Divide matter into as minute parts as you will (which we are apt to imagine a sort of spiritualizing, or making a thinking thing of it), vary the figure and motion of it as much as you please, a globe, cube, cone, prism, cylinder, &c.

whose diameters are but 1,000,000th part of a *gry**, will operate no otherwise upon other bodies of proportionable bulk, than those of an inch or foot diameter; and you may as rationally expect to produce sense, thought and knowledge, by putting together, in a certain figure and motion, gross particles of matter, as by those that are the very minutest that do any where exist; they knock, impel, and resist one another, just as the greater do, and that is all they can do. So that if we will suppose nothing first, or eternal, *matter* can never begin to be; if we suppose bare matter, without motion, eternal, *motion* can never begin to be; if we suppose only matter and motion first, or eternal, *thought* can never begin to be; for it is impossible to conceive that matter, either with or without motion, could have originally in and from itself sense, perception and knowledge, as is evident from hence, that then sense, perception and knowledge, must be a property eternally inseparable from matter and every particle of it; not to add, that though our general or specific conception of matter makes us speak of it as one thing, yet really all matter is not one individual thing, neither is there any such thing existing as one material being, or one single body that we know or can conceive. And therefore if matter were the eternal first cogitative being, there would not be one eternal infinite cogitative being, but an infinite number of eternal finite cogitative beings, independent one of another, of limited force, and distinct thoughts, which could never produce that order, harmony, and beauty, which is to be found in nature. Since, therefore, whatsoever is the first eternal *being* must necessarily be cogitative; and whatsoever is first of all things, must necessarily contain in it, and actu-

* A gry is 1-10th of a line, a line 1-10th of an inch, an inch 1-10th of a philosophical foot, a philosophical foot 1-3d of a pendulum, whose diadroms, in the latitude of 45 degrees, are each equal to one second of time, or 1-60th of a minute. I have affectedly made use of this measure here, and the parts of it, under a decimal division, with names to them, because I think it would be of general convenience that this should be the common measure in the commonwealth of letters.

ally have, at leaſt, all the perfections that can ever after exiſt; nor can it ever give to another any perfection that it hath not, either actually in itſelf, or at leaſt in a higher degree; it neceſſarily follows, that the firſt eternal Being cannot be matter.

§ 11. *Therefore there has been an eternal Wiſdom.* *If*, therefore, it be evident, that *ſomething* neceſſarily muſt *exiſt from eternity*, it is alſo as evident that *that ſomething muſt* neceſſarily *be a cogitative being:* For it is as impoſſible that incogitative matter ſhould produce a cogitative being, as that nothing, or the negation of all being, ſhould produce a poſitive being or matter.

§ 12.

THOUGH this diſcovery of the *neceſſary exiſtence of an eternal mind* does ſufficiently lead us into the knowledge of God; ſince it will hence follow, that all other knowing beings that have a beginning muſt depend on him, and have no other ways of knowledge, or extent of power, than what he gives them; and therefore if he made thoſe, he made alſo the leſs excellent pieces of this univerſe, all inanimate beings, whereby his *omniſcience, power* and *providence* will be eſtabliſhed, and all his other attributes, neceſſarily follow: Yet to clear up this a little farther, we will ſee what doubts can be raiſed againſt it.

§ 13. *Whether material or no.*

FIRST, Perhaps it will be ſaid, that though it be as clear as demonſtration can make it, that there muſt be an eternal being, and that being muſt alſo be knowing, yet it does not follow but that thinking being may alſo be material. Let it be ſo; it equally ſtill follows that there is a God; for if there be an eternal, omniſcient, omnipotent being, it is certain that there is a God, whether you imagine that being to be material or no. But herein, I ſuppoſe, lies the danger and deceit of that ſuppoſition: There being no way to avoid the demonſtration, that there is an eternal knowing being, men, devoted to matter, would willingly have it granted, that this knowing being is ma-

terial; and then letting slide out of their minds, or the discourse, the demonstration whereby an eternal knowing being was proved necessarily to exist, would argue all to be matter, and so deny a God, that is, an eternal cogitative being: whereby they are so far from establishing, that they destroy their own hypothesis; for if there can be, in their opinion, eternal matter, without any eternal cogitative being, they manifestly separate matter and thinking, and suppose no necessary connection of the one with the other, and so establish the necessity of an eternal spirit, but not of matter, since it has been proved already, that an eternal cogitative being is unavoidably to be granted. Now, if thinking matter may be separated, *the eternal existence of matter will not follow from the eternal existence of a cogitative being*, and they suppose it to no purpose.

§ 14. *Not material,* 1. *Because every Particle of Matter is not cogitative.*

But now let us see how they can satisfy themselves or others that this *eternal thinking being is material.*

First, I would ask them, whether they imagine, that all matter, *every particle of matter, thinks?* This, I suppose, they will scarce say; since, then, there would be as many eternal thinking beings as there are particles of matter, and so an infinity of gods. And yet if they will not allow matter as matter, that is, every particle of matter to be as well cogitative as extended, they will have as hard a task to make out to their own reasons a cogitative being out of incogitative particles, as an extended being out of unextended parts, if I may so speak.

§ 15. 2. *One Particle alone of Matter cannot be cogitative.*

Secondly, If all matter does not think, I next ask, whether it be *only one atom that does so?* This has as many absurdities as the other; for then this atom of matter must be alone eternal or not. If this alone be eternal, then this alone, by its powerful thought or will, made all the rest of matter; and so we have

the creation of matter by a powerful thought, which is that the materialists stick at; for if they suppose one single thinking atom to have produced all the rest of matter, they cannot ascribe that pre-eminency to it upon any other account than that of its thinking, the only supposed difference. But allow it to be by some other way, which is above our conception, it must be still creation, and these men must give up their great maxim, *ex nihilo nil fit.* If it be said that all the rest of matter is equally eternal as that thinking atom, it will be to say any thing at pleasure, though never so absurd; for to suppose all matter eternal, and yet one small particle in knowledge and power infinitely above all the rest, is without any of the least appearance of reason to frame any hypothesis. Every particle of matter, as matter, is capable of all the same figures and motions of any other; and I challenge any one in his thoughts to add any thing else to one above another.

§ 16. 3. *A System of incogitative Matter cannot be cogitative.*

Thirdly, If, then, neither one peculiar atom alone can be this eternal thinking being, nor all matter, as matter, *i. e.* every particle of matter, can be it; it only remains, that it is *some certain system of matter*, duly put together, that is this *thinking eternal being.* This is that which I imagine is that notion which men are aptest to have of God, who would have him a material being, as most readily suggested to them, by the ordinary conceit they have of themselves and other men, which they take to be material thinking beings. But this imagination, however more natural, is no less absurd than the other: For to suppose the eternal thinking being to be nothing else but a composition of particles of matter, each whereof is incogitative, is to ascribe all the wisdom and knowledge of that eternal being only to the *juxta*-position of parts; than which nothing can be more absurd; for unthinking particles of matter, however put together, can have nothing thereby added to them, but a new rela-

tion of position, which it is impossible should give thought and knowledge to them.

§ 17. *Whether in motion or at rest.*

But farther, this *corporeal system* either has all its parts at rest, or it is a certain motion of the parts wherein its thinking consists. If it be perfectly at rest, it is but one lump, and so can have no privileges above one atom.

If it be the motion of its parts, on which its thinking depends, all the thoughts there must be unavoidably accidental and limited, since all the particles that by motion cause thought, being each of them in itself without any thought, cannot regulate its own motions, much less be regulated by the thoughts of the whole; since that thought is not the cause of motion (for then it must be antecedent to it, and so without it), but the consequence of it, whereby freedom, power, choice, and all rational and wise thinking or acting, will be quite taken away: So that such a thinking being will be no better nor wiser than pure blind matter; since to resolve all into the accidental unguided motions of blind matter, or into thought depending on unguided motions of blind matter, is the same thing; not to mention the narrowness of such thoughts and knowledge that must depend on the motion of such parts. But there needs no enumeration of any more absurdities and impossibilities in this hypothesis (however full of them it be) than that before mentioned; since, let this thinking system be all, or a part of the matter of the universe, it is impossible that any one particle should either know its own, or the motion of any other particle, or the whole know the motion of every particular, and so regulate its own thoughts or motions, or indeed have any thought resulting from such motion.

§ 18. *Matter not co-eternal with an eternal Mind.*

Others would have *matter* to be *eternal*, notwithstanding that they allow an eternal, cogitative, immaterial being. This, though it take not away the being of a God, yet since it denies one and the first great piece

of his workmanſhip, the creation, let us conſider it a little. *Matter* muſt be allowed eternal; Why? Becauſe you cannot conceive how it can be made out of nothing; why do you not alſo think yourſelf eternal? You will anſwer, perhaps, becauſe about twenty or forty years ſince you began to be. But if I aſk you what that *you* is, which began then to be, you can ſcarce tell me. The matter whereof you are made began not then to be; for if it did, then it is not eternal: But it began to be put together in ſuch a faſhion and frame as makes up your body; but yet that frame of particles is not you, it makes not that thinking thing you are (for I have now to do with one who allows an eternal, immaterial, thinking being, but would have unthinking matter eternal too); therefore when did that thinking thing begin to be? If it did never begin to be, then have you always been a thinking thing from eternity; the abſurdity whereof I need not confute, till I meet with one who is ſo void of underſtanding as to own it. If, therefore, you can allow a thinking thing to be made out of nothing (as all things that are not eternal muſt be), why alſo can you not allow it poſſible for a material being to be made out of nothing, by an equal power, but that you have the experience of the one in view, and not of the other? Though, when well conſidered, creation of a ſpirit will be found to require no leſs power than the creation of matter. Nay, poſſibly, if we would emancipate ourſelves from vulgar notions, and raiſe our thoughts as far as they would reach, to a cloſer contemplation of things, we might be able to aim at ſome dim and ſeeming conception how matter might at firſt be made, and begin to exiſt, by the power of that eternal firſt Being; but to give beginning and being to a ſpirit, would be found a more inconceivable effect of omnipotent power. But this being what would perhaps lead us too far from the notions on which the philoſophy now in the world is built, it would not be pardonable to deviate ſo far from them, or to inquire ſo far as grammar itſelf

would authorise, if the common settled opinion opposes it; especially in this place, where the received doctrine serves well enough to our present purpose, and leaves this past doubt, that the creation or beginning of any one substance out of nothing being once admitted, the creation of all other, but the Creator himself, may, with the same ease, be supposed.

§ 19. *Matter not co-eternal with an eternal Mind.* But you will say, is it not impossible to admit of the *making any thing out of nothing*, since we cannot possibly conceive it? I answer, No: 1. Because it is not reasonable to deny the power of an infinite Being, because we cannot comprehend its operations. We do not deny other effects upon this ground, because we cannot possibly conceive the manner of their production. We cannot conceive how any thing but impulse of body can move body; and yet that is not a reason sufficient to make us deny it possible, against the constant experience we have of it in ourselves, in all our voluntary motions, which are produced in us only by the free action or thought of our own minds, and are not, nor can be the effects of the impulse or determination of the motion of blind matter in or upon our bodies; for then it could not be in our power or choice to alter it. For example: My right-hand writes, whilst my left-hand is still: What causes rest in one, and motion in the other? Nothing but my will, a thought of my mind; my thought only changing, the right-hand rests, and the left-hand moves. This is matter of fact, which cannot be denied: explain this and make it intelligible, and then the next step will be to understand creation; for the giving a new determination to the motion of the animal spirits (which some make use of to explain voluntary motion) clears not the difficulty one jot; to alter the determination of motion, being in this case no easier nor less, than to give motion itself; since the new determination given to the animal spirits, must be either immediately by thought, or by some other body put in their way by thought, which was not in their way

before, and so must owe its motion to thought; either of which leaves voluntary motion as unintelligible as it was before. In the mean time, it is an over-valuing ourselves, to reduce all to the narrow measure of our capacities; and to conclude all things impossible to be done, whose manner of doing exceeds our comprehension. This is to make our comprehension infinite, or God finite, when what he can do is limited to what we can conceive of it. If you do not understand the operations of your own finite mind, that thinking thing within you, do not deem it strange, that you cannot comprehend the operations of that eternal infinite mind, who made and governs all things, and whom the heaven of heavens cannot contain.

CHAP. XI.

OF OUR KNOWLEDGE OF THE EXISTENCE OF OTHER THINGS.

§ 1. *It is to be had only by Sensation.*

THE knowledge of our own being, we have by intuition: The existence of a God, reason clearly makes known to us, as has been shown.

The *knowledge of the existence* of any other thing, we can have only by *sensation:* for there being no necessary connection of *real existence* with any *idea* a man hath in his memory, nor of any other existence but that of God, with the existence of any particular man, no particular man can know the *existence* of any other being, but only when by actual operating upon him, it makes itself perceived by him: For the having the *idea* of any thing in our mind, no more proves the existence of that thing, than the picture of a man evidences his being in the world, or the visions of a dream make thereby a true history.

§ 2. *Instance—Whiteness of this Paper.*

IT is therefore the actual receiving of *ideas* from without, that gives us notice of the *existence* of other

things, and makes us know that something doth exist at that time without us, which causes that *idea* in us, though perhaps we neither know nor consider how it does it; for it takes not from the certainty of our senses, and the *ideas* we receive by them, that we know not the manner wherein they are produced; *v. g.* whilst I write this, I have, by the paper affecting my eyes, that *idea* produced in my mind, which, whatever object causes, I call *white;* by which I know that that quality or accident (*i. e.* whose appearance before my eyes always causes that *idea*) doth really exist, and hath a being without me. And of this, the greatest assurance I can possibly have, and to which my faculties can attain, is the testimony of my eyes, which are the proper and sole judges of this thing, whose testimony I have reason to rely on as so certain, that I can no more doubt, whilst I write this, that I see white and black, and that something really exists, that causes that sensation in me, than that I write or move my hand: which is a certainty as great as human nature is capable of, concerning the existence of any thing, but a man's self alone, and of God.

§ 3. *This, though not so certain as Demonstration, yet may be called Knowledge, and proves the existence of things without us.*

The notice we have by our senses, of the existing of things without us, though it be not altogether so certain as our intuitive knowledge, or the deductions of our reason, employed about the clear abstract *ideas* of our own minds, yet it is an assurance that *deserves the name of knowledge.* If we persuade ourselves that our faculties act and inform us right, concerning the existence of those objects that affect them, it cannot pass for an ill-grounded confidence; for I think nobody can, in earnest, be so sceptical, as to be uncertain of the existence of those things which he sees and feels; at least, he that can doubt so far (whatever he may have with his own thoughts), will never have any controversy with me, since he can never be sure I say any thing contrary to his opinion. As to myself,

I think God has given me assurance enough of the existence of things without me, since by their different application I can produce in myself both pleasure and pain, which is one great concernment of my present state. This is certain, the confidence that our faculties do not herein deceive us, is the greatest assurance we are capable of, concerning the existence of material beings; for we cannot act any thing, but by our faculties; nor talk of knowledge itself, but by the help of those faculties, which are fitted to apprehend even what knowledge is. But besides the assurance we have from our senses themselves, that they do not err in the information they give us of the existence of things without us, when they are affected by them, we are farther confirmed in this assurance by other concurrent reasons.

§ 4. 1. *Because we cannot have them but by the Inlet of the Senses.*

First, It is plain those perceptions are produced in us by exterior causes affecting our senses; because *those that want the organs of any sense, never can have the* ideas *belonging to that sense* produced in their minds. This is too evident to be doubted; and therefore we cannot but be assured, that they come in by the organs of that sense, and no other way. The organs themselves, it is plain, do not produce them; for then the eyes of a man in the dark would produce colours, and his nose smell roses in the winter: but we see nobody gets the relish of a pine-apple, till he goes to the *Indies*, where it is, and tastes it.

§ 5. 2. *Because an* Idea *from actual Sensation, and another from Memory, are very distinct Perceptions.*

Secondly, Because *sometimes I find that I cannot avoid the having those* ideas *produced in my mind.* For though, when my eyes are shut, or windows fast, I can at pleasure recal to my mind the *ideas* of *light*, or the *sun*, which former sensations had lodged in my memory; so I can at pleasure lay by that *idea*, and take into my view that of the *smell* of a rose, or *taste*

of sugar. But if I turn my eyes at noon towards the sun, I cannot avoid the *ideas* which the light, or sun, then produces in me. So that there is a manifest difference between the *ideas* laid up in my memory (over which, if they were there only, I should have constantly the same power to dispose of them, and lay them by at pleasure), and those which force themselves upon me, and I cannot avoid having; and therefore it must needs be some exterior cause, and the brisk acting of some objects without me, whose efficacy I cannot resist, that produces those *ideas* in my mind, whether I will or no. Besides, there is nobody who doth not perceive the difference in himself between contemplating the sun, as he hath the *idea* of it in his memory, and actually looking upon it: of which two, his perception is so distinct, that few of his *ideas* are more distinguishable one from another; and therefore he hath certain knowledge, that they are not both memory, or the actions of his mind, and fancies only within him, but that actual seeing hath a cause without.

§ 6. 3. *Pleasure or Pain which accompanies actual Sensation, accompanies not the returning of those* Ideas *without the external Objects.*

Thirdly, Add to this, that *many of those* ideas *are produced in us with pain, which afterwards we remember without the least offence.* Thus the pain of heat or cold, when the *idea* of it is revived in our minds, gives us no disturbance, which, when felt, was very troublesome, and is again, when actually repeated; which is occasioned by the disorder the external object causes in our bodies when applied to it; and we remember the pain of *hunger*, *thirst*, or the *head-ache*, without any pain at all, which would either never disturb us, or else constantly do it, as often as we thought of it, were there nothing more but *ideas* floating in our minds, and appearances entertaining our fancies, without the real existence of things affecting us from abroad. The same may be said of pleasure, accompanying several actual sensations: and though

mathematical demonstration depends not upon sense, yet the examining them by diagrams gives great credit to the evidence of our sight, and seems to give it a certainty approaching to that of demonstration itself; for it would be very strange, that a man should allow it for an undeniable truth, that two angles of a figure, which he measures by lines and angles of a diagram, should be bigger one than the other; and yet doubt of the existence of those lines and angles, which, by looking on, he makes use of to measure that by.

§ 7. 4. *Our Senses assist one another's Testimony of the Existence of outward Things.*

Fourthly, Our *senses* in many cases bear *witness* to the truth of each other's report, concerning the existence of sensible things without us. He that sees a *fire*, may, if he doubt whether it be any thing more than a bare fancy, feel it too, and be convinced, by putting his hand in it; which certainly could never be put into such exquisite pain, by a bare *idea* or phantom, unless that the pain be a fancy too; which yet he cannot, when the burn is well, by raising the *idea* of it, bring upon himself again.

Thus I see, whilst I write this, I can change the appearance of the paper; and by designing the letters, tell beforehand what new *idea* it shall exhibit the very next moment, barely by drawing my pen over it; which will neither appear (let me fancy as much as I will), if my hands stand still, or though I move my pen, if my eyes be shut; nor when those characters are once made on the paper, can I choose afterwards but see them as they are; that is, have the *ideas* of such letters as I have made; whence it is manifest, that they are not barely the sport and play of my own imagination, when I find that the characters, that were made at the pleasure of my own thoughts, do not obey them, nor yet cease to be, whenever I shall fancy it, but continue to affect my senses constantly and regularly, according to the figures I made them. To which if we will add, that the sight of those shall, from another man, draw such sounds, as I beforehand

design they shall stand for, there will be little reason left to doubt, that those words I write do really exist without me, when they cause a long series of regular sounds to affect my ears, which could not be the effect of my imagination, nor could my memory retain them in that order.

§ 8. *This Certainty is as great as our Condition needs.*

But yet, if after all this, any one will be so sceptical as to distrust his senses, and to affirm that all we see and hear, feel and taste, think and do, during our whole being, is but the series and deluding appearances of a long dream, whereof there is no reality, and therefore will question the existence of all things, or our knowledge of any thing; I must desire him to consider, that if all be a dream, then he doth but dream that he makes the question; and so it is not much matter that a waking man should answer him. But yet, if he pleases, he may dream that I make him this answer, that *the certainty of* things existing *in rerum natura*, when we have *the testimony of our senses* for it, is not only *as great* as our frame can attain to, but *as our condition needs;* for our faculties being suited not to the full extent of being, nor to a perfect, clear, comprehensive knowledge of things, free from all doubt and scruple, but to the preservation of us in whom they are, and accommodated to the use of life; they serve to our purpose well enough, if they will but give us certain notice of those things which are convenient or inconvenient to us; for he that sees a candle burning, and hath experimented the force of its flame, by putting his finger in it, will little doubt that this is something existing without him, which does him harm, and puts him to great pain; which is assurance enough, when no man requires greater certainty to govern his actions by, than what is as certain as his actions themselves. And if our dreamer pleases to try, whether the glowing heat of a glass furnace be barely a wandering imagination in a drowsy man's fancy, by putting his hand into it

he may perhaps be wakened into a certainty greater than he could wish, that it is something more than bare imagination; so that this evidence is as great as we can desire, being as certain to us as our pleasure or pain, *i. e.* happiness or misery, beyond which we have no concernment, either of knowing or being. Such an assurance of the existence of things without us, is sufficient to direct us in the attaining the good, and avoiding the evil, which is caused by them; which is the important concernment we have of being made acquainted with them.

§ 9. *But reaches no farther than actual Sensation.* In fine then, when our senses do actually convey into our understandings any *idea*, we cannot but be satisfied that there doth something at that time really exist without us, which doth affect our senses, and by them give notice of itself to our apprehensive faculties, and actually produce that *idea* which we then perceive; and we cannot so far distrust their testimony as to doubt, that such collections of simple *ideas*, as we have observed by our senses to be united together, do really exist together. But *this knowledge extends as far as the present testimony of our senses*, employed about particular objects that do then affect them, *and no farther*; for if I saw such a collection of simple *ideas*, as is wont to be called *man*, existing together one minute since, and am now alone, I cannot be certain that the same man exists now, since there is no necessary connection of his existence a minute since, with his existence now; by a thousand ways he may cease to be, since I had the testimony of my senses for his existence; and if I cannot be certain, that the man I saw last to-day is now in being, I can less be certain that he is so, who hath been longer removed from my senses, and I have not seen since yesterday, or since the last year; and much less can I be certain of the existence of men that I never saw. And, therefore, though it be highly probable, that millions of men do now exist, yet whilst I am alone writing this, I have not that certainty of it which we strictly call knowledge;

though the great likelihood of it puts me past doubt, and it be reasonable for me to do several things upon the confidence that there are men (and men also of my acquaintance, with whom I have to do) now in the world; but this is but probability, not knowledge.

§ 10. *Folly to expect Demonstration in every Thing.* WHEREBY yet we may observe, how foolish and vain a thing it is, for a man of a narrow knowledge, who having reason given him to judge of the different evidence and probability of things, and to be swayed accordingly; how *vain*, I say, it is *to expect demonstration* and certainty *in things not capable of it*, and refuse assent to very rational propositions, and act contrary to very plain and clear truths, because they cannot be made out so evident, as to surmount every the least (I will not say reason, but) pretence of doubting. He that in the ordinary affairs of life would admit of nothing but direct plain demonstration, would be sure of nothing in this world, but of perishing quickly; the wholesomeness of his meat or drink would not give him reason to venture on it; and I would fain know, what it is he could do upon such grounds as are capable of no doubt, no objection.

§ 11. *Past Existence is known by Memory.* As when our senses are actually employed about any object, we do know that it does exist; so *by our memory* we may be assured, that heretofore things that affected our senses have existed: And thus *we have knowledge of the past existence* of several things, whereof our senses having informed us, our memories still retain the *ideas*; and of this we are past all doubt, so long as we remember well; but this knowledge also reaches no farther than our senses have formerly assured us. Thus, seeing water at this instant, it is an unquestionable truth to me, that water doth exist; and remembering that I saw it yesterday, it will also be always true; and as long as my memory retains it, always an undoubted proposition to me, that water did exist the 10th of July 1688, as it will also be

equally true, that a certain number of very fine colours did exist, which at the same time I saw upon a bubble of that water; but being now quite out of the sight both of the water and bubbles too, it is no more certainly known to me that the water doth now exist, than that the bubbles or colours therein do so; it being no more necessary that water should exist to-day, because it existed yesterday, than that the colours or bubbles exist to-day, because they existed yesterday; though it be exceedingly much more probable, because water hath been observed to continue long in existence, but bubbles and the colours on them quickly cease to be.

§ 12. *The Existence of Spirits not knowable.* What *ideas* we have of spirits, and how we come by them, I have already shown. But though we have those *ideas* in our minds, and know we have them there, the having the *ideas* of spirits does not make us *know*, that any such things do exist without us, or *that there are any finite spirits*, or any other spiritual beings but the Eternal God. We have ground from revelation, and several other reasons, to believe with assurance, that there are such creatures; but our senses not being able to discover them, we want the means of knowing their particular existences; for we can no more know that there are finite spirits really existing, by the *idea* we have of such beings in our minds, than by the *ideas* any one has of fairies, or centaurs, he can come to know that things answering those *ideas* do really exist.

And therefore, concerning the existence of finite spirits, as well as several other things, we must content ourselves with the evidence of faith; but universal certain propositions concerning this matter, are beyond our reach; for however true it may be, *v. g.* that all the intelligent spirits that God ever created, do still exist, yet it can never make a part of our certain knowledge. These and the like propositions we may assent to as highly probable, but are not, I fear, in this state capable of knowing. We are not then to put

others upon demonstrating, nor ourselves upon search of universal certainty in all those matters, wherein we are not capable of any other knowledge, but what our senses give us in this or that particular.

§ 13. *Particular Propositions concerning Existences are knowable.*

By which it appears, that there are two sorts of *propositions*. 1. There is one sort of propositions *concerning* the *existence* of any thing answerable to such an *idea*; as, having the *idea* of an *elephant*, *phœnix*, *motion*, or an *angle*, in my mind, the first and natural inquiry is, whether such a thing does any where exist? And this knowledge is only of *particulars*. No existence of any thing without us, but only of God, can certainly be known farther than our senses inform us. 2. There is another sort of *propositions*, wherein is expressed the agreement or disagreement of our abstract *ideas*, and their dependence one on another. Such propositions may be *universal* and certain. So, having the *idea* of God and myself, of fear and obedience, I cannot but be sure that God is to be feared and obeyed by me; and this proposition will be certain, concerning *man* in general, if I have made an abstract *idea* of such a species, whereof I am one particular. But yet this proposition, how certain soever, that men ought to fear and obey God, proves not to me the existence of men in the world, but will be true of all such creatures whenever they do exist; which *certainty* of such general propositions, depends on the agreement or disagreement, is to be discovered in those abstract *ideas*.

§ 14. *And general Propositions concerning abstract* Ideas.

In the former case, our knowledge is the consequence of the existence of things producing *ideas* in our minds by our senses; in the latter, knowledge is the consequence of the *ideas* (be they what they will), that are in our minds producing there general certain propositions. Many of these are called *æternæ veritates*, and all of them indeed are so; not from being written all

or any of them in the minds of all men, or that they were any of them propositions in any one's mind, till he, having got the abstract *ideas*, joined or separated them by affirmation or negation. But wheresoever we can suppose such a creature as *man* is, endowed with such faculties, and thereby furnished with such *ideas* as we have, we must conclude he must needs, when he applies his thoughts to the consideration of his *ideas*, know the truth of certain propositions that will arise from the agreement or disagreement which he will perceive in his own *ideas*. Such propositions are therefore called *eternal truths*, not because they are eternal propositions actually formed, and antecedent to the understanding that any time makes them; nor because they are imprinted on the mind from any patterns that are any where of them out of the mind, and existed before; but because being once made about abstract *ideas* so as to be true, they will, whenever they can be supposed to be made again at any time past or to come, by a mind having those *ideas*, always actually be true; for names being supposed to stand perpetually for the same *ideas*, and the same *ideas* having immutably the same habitudes one to another, propositions concerning any abstract *ideas* that are once true, must needs be *eternal verities*.

CHAP. XII.

OF THE IMPROVEMENT OF OUR KNOWLEDGE.

§ 1. *Knowledge is not from Maxims.*

IT having been the common received opinion amongst men of letters, that *maxims* were the foundation of all knowledge; and that the sciences were each of them built upon certain *præcognita*, from whence the understanding was to take its rise, and by which it was to conduct itself, in its inquiries into the matters belonging to that science; the beaten road of the schools has been, to lay down in the beginning one or more general propositions, as foundations where-

on to build the knowledge that was to be had of that subject. These doctrines thus laid down for foundations of any science, were called *principles*, as the beginnings from which we must set out, and look no farther backwards in our inquiries, as we have already observed.

§ 2. *The occasion of that Opinion.*

One thing which might probably give an occasion to this way of proceeding in other sciences, was (as I suppose) the good success it seemed to have in *mathematics*, wherein men, being observed to attain a great certainty of knowledge, these sciences came by pre-eminence to be called Μαθήματα and Μάθησις, learning, or things learned, thoroughly learned, as having of all others the greatest certainty, clearness and evidence in them.

§ 3. *But from the comparing clear and distinct* Ideas.

But if any one will consider, he will (I guess) find that the *great advancement* and certainty of *real knowledge*, which men arrived to in these sciences, was not owing to the influence of these principles, nor derived from any peculiar advantage they received from two or three general maxims, laid down in the beginning, but from the *clear*, *distinct*, *complete ideas* their thoughts were employed about, and the relation of equality and excess so clear between some of them, that they had an intuitive knowledge, and by that a way to discover it in others, and this without the help of those *maxims*. For I ask, is it not possible for a young lad to know, that his whole body is bigger than his little finger, but by virtue of this axiom, that *the whole is bigger than a part*, nor be assured of it till he has learned that *maxim?* Or cannot a country-wench know, that having received a shilling from one that owes her three, and a shilling also from another that owes her three, that the remaining debts in each of their hands are equal? Cannot she know this, I say, without she fetch the certainty of it from this maxim, that *if you take equals from equals, the remainder will be equals*, a maxim which possibly she

never heard or thought of? I desire any one to consider, from what has been elsewhere said, which is known first and clearest by most people, the particular instance, or the general rule, and which it is that gives life and birth to the other. These general rules are but the comparing our more general and abstract *ideas*, which are the workmanship of the mind made, and names given to them, for the easier dispatch in its reasonings, and drawing into comprehensive terms, and short rules, its various and multiplied observations; but knowledge began in the mind, and was founded on particulars, though afterwards perhaps no notice be taken thereof; it being natural for the mind (forward still to enlarge its knowledge) most attentively to lay up those general notions, and make the proper use of them, which is to disburden the memory of the cumbersome load of particulars. For I desire it may be considered what more certainty there is to a child, or any one, that his body, little finger and all, is bigger than his little finger alone, after you have given to his body the name *whole*, and to his little finger the name *part*, than he could have had before; or what new knowledge concerning his body, can these two relative terms give him, which he could not have without them? Could he not know that his body was bigger than his little finger, if his language were yet so imperfect, that he had no such relative terms as *whole* and *part*? I ask farther, when he has got these names, how is he more certain that his body is a *whole*, and his little finger a *part*, than he was or might be certain, before he learned these terms, that his body was bigger than his little finger? Any one may as reasonably doubt or deny that his little finger is a part of his body, as that it is less than his body; and he that can doubt whether it be less, will as certainly doubt whether it be a part; so that the maxim, *the whole is bigger than a part*, can never be made use of to prove the little finger less than the body, but when it is useless, by being brought to convince one of a truth which he knows already; for he that does

not know that any parcel of matter, with another parcel of matter joined to it, is bigger than either of them alone, will never be able to know it by the help of these two relative terms, *whole* and *part*, make of them what maxim you please.

§ 4. *Dangerous to build upon precarious Principles.* But be it in the mathematics as it will, whether it be clearer, that taking an inch from a black line of two inches, and an inch from a red line of two inches, the remaining parts of the two lines will be equal, or that *if you take equals from equals, the remainder will be equals*; which, I say, of these two is the clearer and first known, I leave to any one to determine, it not being material to my present occasion. That which I have here to do is to inquire, whether, if it be the readiest way to knowledge to begin with general maxims, and build upon them, it be yet a safe way to take the principles which are laid down in any other science as unquestionable truths, and so receive them without examination, and adhere to them, without suffering to be doubted of, because mathematicians have been so happy, or so fair, to use none but self-evident and undeniable. If this be so, I know not what may not pass for truth in morality, what may not be introduced and proved in natural philosophy.

Let that principle of some of the philosophers, that all is matter, and that there is nothing else, be received for certain and indubitable, and it will be easy to be seen by the writings of some that have revived it again in our days, what consequences it will lead us into. Let any one, with *Polemo*, take the world, or with the *stoics*, the *ether* or the sun, or with *Anaximenes*, the air, to be *God*; and what a divinity, religion and worship must we needs have! *Nothing* can be so *dangerous as principles* thus *taken up without questioning or examination*, especially if they be such as concern morality, which influence mens lives, and give a bias to all their actions. Who might not justly expect another kind of life in *Aristippus*, who placed happiness in bodily pleasure, and in *Antisthenes*, who

made virtue sufficient to felicity? And he who, with *Plato*, shall place beatitude in the knowledge of God, will have his thoughts raised to other contemplations than those who looked not beyond this spot of earth, and those perishing things which are to be had in it. He that with *Archelaus* shall lay it down as a principle, that right and wrong, honest and dishonest, are defined only by laws, and not by nature, will have other measures of moral rectitude and pravity than those who take it for granted that we are under obligations antecedent to all human constitutions.

§ 5. *This is no certain way to Truth.*

If, therefore, those that pass for *principles*, are *not certain* (which we must have some way to know, that we may be able to distinguish them from those that are doubtful), but are only made so to us by our blind assent, we are liable to be misled by them, and instead of being guided into truth, we shall by principles be only confirmed in mistake and error.

§ 6. *But to compare clear complete* Ideas *under steady Names.*

But since the knowledge of the certainty of principles, as well as of all other truths, depends only upon the perception we have of the agreement or disagreement of our *ideas*, *the way to improve our knowledge* is not, I am sure, blindly, and with an implicit faith, to receive and swallow principles; but is, I think, *to* get and *fix in our minds clear*, *distinct and complete* ideas, as far as they are to be had, *and annex to them proper and constant names*; and thus, perhaps, without any other principles, but barely considering those *ideas*, and by *comparing them one with another*, finding their agreement and disagreement, and their several relations and habitudes, we shall get more true and clear knowledge, by the conduct of this one rule, than by taking up principles, and thereby putting our minds into the disposal of others.

§ 7. *The true Method of advancing Knowledge is by conſidering our abſtract* Ideas.

We muſt therefore, if we will proceed as reaſon adviſes, *adapt our methods of inquiry to the nature of the* ideas *we examine*, and the truth we ſearch after. General and certain truths are only founded in the habitudes and relations of abſtract *ideas*. A ſagacious and methodical application of our thoughts, for the finding out theſe relations, is the only way to diſcover all that can be put, with truth and certainty, concerning them, into general propoſitions. By what ſteps we are to proceed in theſe, is to be learned in the ſchools of the mathematicians, who from very plain and eaſy beginnings, by gentle degrees, and a continued chain of reaſonings, proceed to the diſcovery and demonſtration of truths, that appear at firſt ſight beyond human capacity. The art of finding proofs, and the admirable methods they have invented for the ſingling out and laying in order thoſe intermediate *ideas*, that demonſtratively ſhow the equality or inequality of unapplicable quantities, is that which has carried them ſo far, and produced ſuch wonderful and unexpected diſcoveries; but whether ſomething like this, in reſpect of other *ideas*, as well as thoſe of magnitude, may not in time be found out, I will not determine. This I think I may ſay, that if other *ideas*, that are the real as well as the nominal eſſences of their ſpecies, were purſued in the way familiar to mathematicians, they would carry our thoughts farther, and with greater evidence and clearneſs, than poſſibly we are apt to imagine.

§ 8. *By which Morality alſo may be made clearer.* This gave me the confidence to advance that conjecture, which I ſuggeſt, *chap.* 3. viz. that *morality is capable of demonſtration* as well as mathematics; for the *ideas* that ethics are converſant about being all real eſſences, and ſuch as I imagine have a diſcoverable connection and agreement one with another; ſo far as we can find their habitudes and relations, ſo far we ſhall be poſſeſſed of certain, real and general

truths; and I doubt not, but if a right method were taken, a great part of morality might be made out with that clearneſs that could leave to a conſidering man no more reaſon to doubt, than he could have to doubt of the truth of propoſitions in mathematics, which have been demonſtrated to him.

§ 9. *But Knowledge of Bodies is to be improved only by Experience.*

In our ſearch after the knowledge of *ſubſtances*, our want of *ideas* that are ſuitable to ſuch a way of proceeding, obliges us to a quite different method. We advance not here as in the other (where our abſtract *ideas* are real as well as nominal eſſences), by contemplating our *ideas*, and conſidering their relations and correſpondences; that helps us very little, for the reaſons that in another place we have at large ſet down. By which I think it is evident, that ſubſtances afford matter of very little general knowledge, and the bare contemplation of their abſtract *ideas* will carry us but a very little way in the ſearch of truth and certainty. What then are we to do for the improvement of our *knowledge in ſubſtantial beings?* Here we are to take a quite contrary courſe; the want of *ideas* of their real *eſſences* ſends us from our own thoughts to the things themſelves as they exiſt: *Experience here muſt teach me* what reaſon cannot, and it is by trying alone that I can certainly know what other qualities co-exiſt with thoſe of my complex *idea*, *v. g.* whether that *yellow*, *heavy*, *fuſible* body I call *gold* be *malleable* or no, which experience (which way ever it prove in that particular body I examine) makes me not certain that it is ſo in all, or any other *yellow*, *heavy*, *fuſible* bodies, but that which I have tried; becauſe it is no conſequence one way or the other from my complex *idea;* the neceſſity or inconſiſtence of *malleability* hath no viſible connection with the combination of that *colour*, *weight*, and *fuſibility* in any body. What I have ſaid here of the nominal eſſence of *gold*, ſuppoſed to conſiſt of a body of ſuch a determinate *colour*, *weight* and *fuſibility*,

will hold true, if *malleableneſs*, *fixedneſs*, and *ſolubility* in *aqua regia* be added to it. Our reaſonings from theſe *ideas* will carry us but a little way in the certain diſcovery of the other properties in thoſe maſſes of matter wherein all theſe are to be found; becauſe the other properties of ſuch bodies depending not on theſe, but on that unknown real eſſence, on which theſe alſo depend, we cannot by them diſcover the reſt; we can go no farther than the ſimple *ideas* of our nominal eſſence will carry us, which is very little beyond themſelves, and ſo afford us but very ſparingly any certain univerſal and uſeful truths; for upon trial having found that particular piece (and all others of that colour, weight and fuſibility that I ever tried) *malleable*, that alſo makes now perhaps a part of my complex *idea*, part of my nominal eſſence of *gold*; whereby, though I make my complex *idea* to which I affix the name *gold*, to conſiſt of more ſimple *ideas* than before, yet ſtill, it not containing the real eſſence of any ſpecies of bodies, it helps me not certainly to know (I ſay to know, perhaps it may to conjecture) the other remaining properties of that body, farther than they have a viſible connection with ſome or all of the ſimple *ideas* that make up my nominal eſſence. For example, I cannot be certain from this complex *idea*, whether *gold* be fixed, or no; becauſe, as before, there is no neceſſary connection or inconſiſtence to be diſcovered betwixt a complex *idea* of a body, *yellow*, *heavy*, *fuſible*, *malleable*; betwixt theſe, I ſay, and *fixedneſs*; ſo that I may certainly know, that in whatſoever body theſe are found, there *fixedneſs* is ſure to be. Here again for aſſurance, I muſt apply myſelf to *experience*; as far as that reaches, I may have certain knowledge, but no farther.

§ 10. *This may procure us Convenience, not Science.* I DENY not but a man, accuſtomed to rational and regular experiments, ſhall be able to ſee farther into the nature of bodies, and gueſs righter at their yet unknown properties, than one that is a ſtranger to them; but yet, as I have ſaid, this is but judgment and opi-

nion, not knowledge and certainty. This *way of* getting and *improving our knowledge in ſubſtances only by experience* and hiſtory, which is all that the weakneſs of our faculties in this ſtate of *mediocrity* which we are in in this world can attain to, makes me ſuſpect that natural philoſophy is not capable of being made a ſcience. We are able, I imagine, to reach very little general knowledge concerning the ſpecies of bodies, and their ſeveral properties. Experiments and hiſtorical obſervations we may have, from which we may draw advantages of eaſe and health, and thereby increaſe our ſtock of conveniencies for this life; but beyond this I fear our talents reach not, nor are our faculties, as I gueſs, able to advance.

§ 11. *We are fitted for moral Knowledge and natural Improvements.*

From whence it is obvious to conclude, that ſince our faculties are not fitted to penetrate into the internal fabric, and real eſſences of bodies, but yet plainly diſcover to us the being of a God, and the knowledge of ourſelves, enough to lead us into a full and clear diſcovery of our duty and great concernment; it will become us, as rational creatures, to employ thoſe faculties we have about what they are adapted to, and follow the direction of nature, where it ſeems to point us out the way; for it is rational to conclude that our proper employment lies in thoſe inquiries, and in that ſort of knowledge which is moſt ſuited to our natural capacities, and carries in it our greateſt intereſt, *i. e.* the condition of our eternal eſtate. Hence I think I may conclude, that *morality* is *the proper ſcience and buſineſs of mankind in general* (who are both concerned and fitted to ſearch out their *ſummum bonum*), as ſeveral arts, converſant about ſeveral parts of nature, are the lot and private talent of particular men, for the common uſe of human life, and their own particular ſubſiſtence in this world. Of what conſequence the diſcovery of one natural body and its properties may be to human life, the whole great continent of America is a convincing inſtance; whoſe

ignorance in useful arts, and want of the greatest part of the conveniencies of life, in a country that abounded with all sorts of natural plenty, I think, may be attributed to their ignorance of what was to be found in a very ordinary despicable stone, I mean the mineral of *iron;* and whatever we think of our parts or improvements in this part of the world, where knowledge and plenty seem to vie each with other, yet to any one that will seriously reflect on it, I suppose it will appear past doubt, that were the use of *iron* lost among us, we should in a few ages be unavoidably reduced to the wants and ignorance of the ancient savage Americans, whose natural endowments and provisions come no way short of those of the most flourishing and polite nations; so that he who first made known the use of that one contemptible mineral, may be truly styled the father of arts, and author of plenty.

§ 12. *But must beware of Hypothesis and wrong Principles.*

I WOULD *not therefore* be thought to disesteem, or *dissuade the study of nature.* I readily agree, the contemplation of his works gives us occasion to admire, revere, and glorify their Author; and if rightly directed, may be of greater benefit to mankind than the monuments of exemplary charity, that have at so great charge been raised by the founders of hospitals and almshouses. He that first invented printing, discovered the use of the compass, or made public the virtue and right use of *kin kina,* did more for the propagation of knowledge, for the supplying and increase of useful commodities, and saved more from the grave, than those who built colleges, work-houses and hospitals. All that I would say is, that we should not be too forwardly possessed with the opinion or expectation of knowledge, where it is not to be had, or by ways that will not attain it; that we should not take doubtful systems for complete sciences, nor unintelligible notions for scientifical demonstrations. In the knowledge of bodies, we must be content to glean what

we can from particular experiments; since we cannot, from a discovery of their real essences, grasp at a time whole sheaves, and in bundles comprehend the nature and properties of whole species together. Where our inquiry is concerning co-existence, or repugnancy to co-exist, which by contemplation of our *ideas* we cannot discover, there experience, observation and natural history must give us by our senses, and by retail, an insight into corporeal substances. The knowledge of bodies we must get by our senses, warily employed in taking notice of their qualities and operations on one another; and what we hope to know of separate spirits in this world, we must, I think, expect only from revelation. He that shall consider *how little general maxims, precarious principles, and hypotheses laid down at pleasure, have promoted true knowledge*, or helped to satisfy the inquiries of rational men after real improvements; how little, I say, the setting out at that end has, for many ages together, advanced mens progress towards the knowledge of natural philosophy, will think we have reason to thank those, who in this latter age have taken another course, and have trod out to us, though not an easier way to learned ignorance, yet a surer way to profitable knowledge.

§ 13. *The true use of Hypotheses.*

Not that we may not, to explain any *phenomena* of nature, make use of any probable *hypothesis* whatsoever: *Hypotheses*, if they are well made, are at least great helps to the memory, and often direct us to new discoveries; but my meaning is, that we should *not take up any one too hastily* (which the mind, that would always penetrate into the causes of things, and have principles to rest on, is very apt to do), till we have very well examined particulars, and made several experiments in that thing which we would explain by our hypothesis, and see whether it will agree to them all; whether our principles will carry us quite through, and not be as inconsistent with one *phenomenon* of nature, as they seem to accommodate and explain ano-

ther; and at leaſt that we take care that the name of *principles* deceive us not, nor impoſe on us, by making us receive that for an unqueſtionable truth, which is really at beſt but a very doubtful conjecture, ſuch as are moſt (I had almoſt ſaid all) of the *hypotheſes* in natural philoſophy.

§ 14. *Clear and diſtinct* Ideas *with ſettled Names, and the finding of thoſe which ſhow their Agreement or Diſagreement, are the ways to enlarge our Knowledge.*

But whether natural philoſophy be capable of certainty or no, *the ways to enlarge our knowledge*, as far as we are capable, ſeem to me in ſhort to be theſe two:

Firſt, The *firſt is to get and ſettle in our minds* determined *ideas* of thoſe things whereof we have general or ſpecific names, at leaſt of ſo many of them as we would conſider and improve our knowledge in, or reaſon about; and if they be *ſpecific* ideas of *ſubſtances*, we ſhould endeavour alſo to make them as complete as we can, whereby I mean that we ſhould put together as many ſimple *ideas*, as being conſtantly obſerved to co-exiſt, may perfectly determine the *ſpecies*; and each of thoſe ſimple *ideas*, which are the ingredients of our complex ones, ſhould be clear and diſtinct in our minds; for it being evident that our knowledge cannot exceed our *ideas*, as far as they are either imperfect, confuſed, or obſcure, we cannot expect to have certain, perfect or clear knowledge.

Secondly, The other is the art of *finding out* thoſe *intermediate ideas*, which may ſhow us the agreement or repugnancy of other *ideas* which cannot be immediately compared.

§ 15. *Mathematics, an Inſtance of it.*

That theſe two (and not the relying on maxims, and drawing conſequences from ſome general propoſitions) are the right method of improving our knowledge in the *ideas* of other modes beſides thoſe of quantity, the conſideration of mathematical knowledge will eaſily inform us; where firſt we ſhall find, that he that has not a perfect and clear *idea* of

thoſe angles or figures of which he deſires to know any thing, is utterly thereby incapable of any knowledge about them. Suppoſe but a man not to have a perfect exact *idea* of a *right angle*, a *ſcalenum*, or *trapezium*, and there is nothing more certain than that he will in vain ſeek any demonſtration about them. Farther, it is evident that it was not the influence of thoſe maxims, which are taken for principles in mathematics, that hath led the maſters of that ſcience into thoſe wonderful diſcoveries they have made. Let a man of good parts know all the maxims generally made uſe of in mathematics never ſo perfectly, and contemplate their extent and conſequences as much as he pleaſes, he will by their aſſiſtance, I ſuppoſe, ſcarce ever come to know that *the ſquare of the hypotenuſe in a right angled triangle, is equal to the ſquares of the two other ſides;* the knowledge that *the whole is equal to all its parts*, and *if you take equals from equals, the remainder will be equals*, &c. helped him not, I preſume, to this demonſtration; and a man may, I think, pore long enough on thoſe axioms, without ever ſeeing one jot the more of mathematical truths: They have been diſcovered by the thoughts otherwiſe applied; the mind had other objects, other views before it, far different from thoſe maxims, when it firſt got the knowledge of ſuch kind of truths in mathematics, which men well enough acquainted with thoſe received axioms, but ignorant of their method, who firſt made theſe demonſtrations, can never ſufficiently admire; and who knows what methods, to enlarge our knowledge in other parts of ſcience, may hereafter be invented, anſwering that of *algebra* in mathematics, which ſo readily finds out *ideas* of quantities to meaſure others by, whoſe equality or proportion we could otherwiſe very hardly, or perhaps never come to know?

CHAP. XIII.

SOME FARTHER CONSIDERATIONS CONCERNING OUR KNOWLEDGE.

§ 1. *Our Knowledge partly necessary, partly voluntary.* OUR *knowledge*, as in other things, so in this, has a great conformity with our sight, that it is *neither wholly necessary, nor wholly voluntary*. If our knowledge were altogether necessary, all mens knowledge would not only be alike, but every man would know all that is knowable: and if it were wholly voluntary, some men so little regard or value it, that they would have extreme little, or none at all. Men that have senses cannot choose but receive some *ideas* by them; and if they have memory, they cannot but retain some of them; and if they have any distinguishing faculty, cannot but perceive the agreement or disagreement of some of them one with another; as he that has eyes, if he will open them by day, cannot but see some objects, and perceive a difference in them. But though a man, with his eyes open in the light, cannot but see, yet there be certain objects, which he may choose whether he will turn his eyes to; there may be in his reach a book containing pictures and discourses, capable to delight or instruct him, which yet he may never have the will to open, never take the pains to look into.

§ 2. *The Application voluntary; but we know as things are, not as we please.*

THERE is also another thing in a man's power, and that is, though he turns his eyes sometimes towards an object, yet he may choose whether he will curiously survey it, and with an intent application endeavour to observe accurately all that is visible in it. But yet what he does see, he cannot see otherwise than he does. It depends not on his will to see that *black* which appears *yellow*; nor to persuade himself, that what actually *scalds* him, feels *cold*. The earth will not appear painted with flowers, nor the fields covered with verdure, whenever he has a mind to it: in the cold winter, he cannot help seeing it white

and hoary, if he will look abroad. Just thus is it with our understanding; all that is *voluntary* in our knowledge, is the *employing* or with-holding any of *our faculties* from this or that sort of objects, and a more or less accurate survey of them: but they being employed, *our will hath no power to determine the knowledge of the mind* one way or other; that is done only by the objects themselves, as far as they are clearly discovered. And therefore, as far as mens senses are conversant about external objects, the mind cannot but receive those *ideas* which are presented by them, and be informed of the existence of things without: and so far as mens thoughts converse with their own determined *ideas*, they cannot but in some measure observe the agreement and disagreement that is to be found amongst some of them, which is so far knowledge: and if they have names for those *ideas* which they have thus considered, they must needs be assured of the truth of those propositions which express that agreement or disagreement they perceive in them, and be undoubtedly convinced of those truths. For what a man sees, he cannot but see; and what he perceives, he cannot but know that he perceives.

§ 3. *Instance—In Numbers.*

Thus he that has got the *ideas* of numbers, and hath taken the pains to compare *one*, *two* and *three*, to *six*, cannot choose but know that they are equal: he that hath got the *idea* of a triangle, and found the ways to measure its angles, and their magnitudes, is certain that its three angles are equal to two right ones, and can as little doubt of that, as of this truth, that *it is impossible for the same thing to be, and not to be.*

In Natural Religion.

He also that hath the *idea* of an intelligent, but frail and weak being, made by and depending on another, who is eternal, omnipotent, perfectly wise and good, will as certainly know that man is to honour, fear and obey GOD, as that the sun shines when he sees it. For if he hath but the *ideas* of two such beings in his mind, and will turn his thoughts that way, and consider them, he will as certainly find that the inferior, finite and de-

pendent, is under an obligation to obey the Supreme and Infinite, as he is certain to find, that *three*, *four* and *seven*, are less than *fifteen*, if he will consider and compute those numbers; nor can he be surer in a clear morning that the sun is risen, if he will but open his eyes, and turn them that way. But yet these truths, being never so certain, never so clear, he may be ignorant of either, or all of them, who will never take the pains to employ his faculties, as he should, to inform himself about them.

CHAP. XIV.

OF JUDGMENT.

§ 1. *Our Knowledge being short, we want something else.*

THE understanding faculties being given to man, not barely for speculation, but also for the conduct of his life, man would be at a great loss, if he had nothing to direct him but what has the certainty of true *knowledge*; for that being very short and scanty, as we have seen, he would be often utterly in the dark, and in most of the actions of his life perfectly at a stand, had he nothing to guide him in the absence of clear and certain knowledge. He that will not eat till he has demonstration that it will nourish him, he that will not stir till he infallibly knows the business he goes about will succeed, will have little else to do but sit still and perish.

§ 2. *What use to be made of this twilight State.* THEREFORE, as God has set some things in broad daylight, as he has given us some certain knowledge, though limited to a few things in comparison, probably as a taste of what intellectual creatures are capable of, to excite in us a desire and endeavour after a better state, so in the greatest part of our concernment, he has afforded us only the twilight, as I may so say, of *probability*, suitable, I presume, to that state of mediocrity and probationership he has been pleased to place us in here; wherein, to check our over-confidence and presumption,

we might by every day's experience be made sensible of our short-sightedness and liableness to error; the sense whereof might be a constant admonition to us to spend the days of this our pilgrimage with industry and care, in the search and following of that way which might lead us to a state of greater perfection; it being highly rational to think, even were revelation silent in the case, that as men employ those talents God has given them here, they shall accordingly receive their rewards at the close of the day, when their sun shall set, and night shall put an end to their labours.

§ 3. *Judgment supplies the want of Knowledge.* The faculty which God has given man to supply the want of clear and certain knowledge, in cases where that cannot be had, is *judgment*, whereby the mind takes its *ideas* to agree or disagree, or, which is the same, any proposition to be true or false, without perceiving a demonstrative evidence in the proofs. The mind sometimes exercises this *judgment* out of necessity, where demonstrative proofs, and certain knowledge are not to be had; and sometimes out of laziness, unskilfulness, or haste, even where demonstrative and certain proofs are to be had. Men often stay not warily to examine the agreement or disagreement of two *ideas*, which they are desirous or concerned to know, but, either incapable of such attention as is requisite in a long train of gradations, or impatient of delay, lightly cast their eyes on, or wholly pass by the proofs; and so, without making out the demonstration, determine of the agreement or disagreement of two *ideas*, as it were by a view of them as they are at a distance, and take it to be the one or the other as seems most likely to them upon such a loose survey. This faculty of the mind, when it is exercised immediately about things, is called *judgment;* when about truths delivered in words, is most commonly called *assent* or *dissent*; which being the most usual way wherein the mind has occasion to employ this faculty, I shall under these terms treat of it, as least liable in our language to equivocation.

§ 4. *Judgment is the presuming things to be so, without perceiving it.*

Thus the mind has two faculties, conversant about truth and falsehood.

First, *Knowledge*, whereby it certainly perceives, and is undoubtedly satisfied of the agreement or disagreement of any *ideas*.

Secondly, *Judgment*, which is the putting *ideas* together, or separating them from one another in the mind, when their certain agreement or disagreement is not perceived, but presumed to be so; which is as the word imports, taken to be so, before it certainly appears. And if it so unites, or separates them, as in reality things are, it is *right judgment*.

CHAP. XV.

OF PROBABILITY.

§ 1. *Probability is the appearance of Agreement upon fallible Proofs.*

As demonstration is the showing the agreement or disagreement of two *ideas*, by the intervention of one or more proofs, which have a constant, immutable, and visible connection one with another; so *probability* is nothing but the appearance of such an agreement or disagreement by the intervention of proofs whose connection is not constant and immutable, or at least is not perceived to be so, but is, or appears for the most part to be so, and is enough to induce the mind to *judge* the proposition to be true or false, rather than the contrary. For example: In the demonstration of it, a man perceives the certain immutable connection there is of equality between the three angles of a *triangle*, and those intermediate ones which are made use of to show their equality to two right ones; and so by an intuitive knowledge of the agreement or disagreement of the intermediate *ideas* in each step of the progress, the whole series is continued with an evidence, which clearly shows the agreement or disagreement of those three angles in equality to two right ones; and thus he has certain know-

ledge that it is so. But another man, who never took the pains to observe the demonstration, hearing a mathematician, a man of credit, affirm the three angles of a triangle to be equal to two right ones, *assents* to it, *i. e.* receives it for true; in which case the foundation of his assent is the probability of the thing, the proof being such as for the most part carries truth with it, the man on whose testimony he receives it, not being wont to affirm any thing contrary to, or besides his knowledge, especially in matters of this kind. So that that which causes his assent to this proposition, that the three angles of a triangle are equal to two right ones, that which makes him take these *ideas* to agree, without knowing them to do so, is the wonted veracity of the speaker in other cases, or his supposed veracity in this.

§ 2. *It is to supply the want of Knowledge.*

Our knowledge, as has been shown, being very narrow, and we not happy enough to find certain truth in every thing which we have occasion to consider, most of the propositions we think, reason, discourse, nay, act upon, are such as we cannot have undoubted knowledge of their truth; yet some of them border so near upon certainty, that we make no doubt at all about them, but *assent* to them as firmly, and act, according to that assent, as resolutely as if they were infallibly demonstrated, and that our knowledge of them was perfect and certain. But there being degrees herein from the very neighbourhood of certainty and demonstration, quite down to improbability and unlikeness, even to the confines of impossibility; and also degrees of *assent* from full *assurance* and confidence, quite down to *conjecture*, doubt, and *distrust*: I shall come now (having, as I think, found out the bounds of human knowledge and certainty), in the next place, to consider *the several degrees and grounds of probability, and assent or faith.*

§ 3. *Being that which makes us presume things to be true before we know them to be so.*

Probability is likeliness to be true, the very notation of the word signifying such a proposition, for which there be arguments or proofs, to make it pass or be re-

ceived for true. The entertainment the mind gives this sort of propositions, is called *belief*, *assent*, or *opinion*, which is the admitting or receiving any proposition for true, upon arguments or proofs that are found to persuade us to receive it as true, without certain knowledge that it is so. And herein lies the *difference between probability*, and *certainty*, *faith* and *knowledge*, that in all the parts of knowledge there is intuition; each immediate *idea*, each step has its visible and certain connection; in belief, not so. That which makes me believe, is something extraneous to the thing I believe; something not evidently joined on both sides to, and so not manifestly showing the agreement or disagreement of those *ideas* that are under consideration.

§ 4. *The Grounds of Probability are two; Conformity with our own Experience, or the Testimony of others experienced.*

PROBABILITY then, being to supply the defect of our knowledge, and to guide us where that fails, is always conversant about propositions, whereof we have no certainty, but only some inducements to receive them for true. The *grounds* of it are, in short, these two following:

First, The conformity of any thing with our own knowledge, observation, and experience.

Secondly, The testimony of others, vouching their observation and experience. In the testimony of others is to be considered, 1. The number. 2. The integrity. 3. The skill of the witnesses. 4. The design of the author, where it is a testimony out of a book cited. 5. The consistency of the parts, and circumstances of the relation. 6. Contrary testimonies.

§ 5. *In this all the Agreements* pro *and* con, *ought to be examined before we come to a judgment.*

PROBABILITY wanting that intuitive evidence, which infallibly determines the understanding, and produces certain knowledge, *the mind, if it would proceed rationally, ought to examine all the grounds of probability*, and see how they make more or less, *for or against* any proposition, before it assents to or dissents from it; and upon a due

balancing the whole, reject, or receive it, with a more or less firm assent, proportionably to the preponderancy of the greater grounds of probability on one side or the other. For example:

If I myself see a man walk on the ice, it is past *probability*, it is knowledge: but if another tells me he saw a man in *England*, in the midst of a sharp winter, walk upon water hardened with cold, this has so great conformity with what is usually observed to happen, that I am disposed by the nature of the thing itself to assent to it, unless some manifest suspicion attend the relation of that matter of fact. But if the same thing be told to one born between the tropics, who never saw nor heard of any such thing before, there the whole probability relies on testimony; and as the relaters are more in number, and of more credit, and have no interest to speak contrary to the truth, so that matter of fact is like to find more or less belief. Though to a man, whose experience has been always quite contrary, and has never heard of any thing like it, the most untainted credit of a witness will scarce be able to find belief; as it happened to a *Dutch* ambassador, who entertaining the king of *Siam* with the particularities of *Holland*, which he was inquisitive after, amongst other things told him, that the water in his country would sometimes in cold weather be so hard, that men walked upon it, and that it would bear an elephant if he were there; to which the king replied, *Hitherto I have believed the strange things you have told me, because I look upon you as a sober fair man, but now I am sure you lie.*

§ 6. *They being capable of great Variety.*

Upon these grounds depends the *probability* of any proposition; and as the conformity of our knowledge, as the certainty of observations, as the frequency and constancy of experience, and the number and credibility of testimonies, do more or less agree or disagree with it, so is any proposition in itself more or less probable. There is another, I confess, which though by itself it be no true ground of *probability*, yet is often made use of for one, by which men most commonly regulate their as-

fent, and upon which they pin their faith more than any thing elſe, and that is the opinion of others; though there cannot be a more dangerous thing to rely on, nor more likely to miſlead one, ſince there is much more falſehood and error among men, than truth and knowledge; and if the opinions and perſuaſions of others whom we know and think well of be a ground of aſſent, men have reaſon to be heathens in *Japan*, Mahometans in *Turkey*, Papiſts in *Spain*, Proteſtants in *England*, and Lutherans in *Sweden*. But of this wrong ground of aſſent, I ſhall have occaſion to ſpeak more at large in another place.

CHAP. XVI.

OF THE DEGREES OF ASSENT.

§ 1. *Our Aſſent ought to be regulated by the Grounds of Probability.*

THE grounds of probability we have laid down in the foregoing chapter, as they are the foundations on which our *aſſent* is built, ſo are they alſo the meaſure whereby its ſeveral degrees are, or ought to be *regulated*; only we are to take notice, that whatever grounds of probability there may be, they yet operate no further on the mind, which ſearches after truth, and endeavours to judge right, than they appear, at leaſt in the firſt judgment or ſearch that the mind makes. I confeſs, in the opinions men have, and firmly ſtick to in the world, their *aſſent* is not always from an actual view of the reaſons that at firſt prevailed with them; it being in many caſes almoſt impoſſible, and in moſt very hard, even for thoſe who have very admirable memories, to retain all the proofs, which upon a due examination made them embrace that ſide of the queſtion. It ſuffices that they have once with care and fairneſs ſifted the matter as far as they could, and that they have ſearched into all the particulars that they could imagine to give any light to the queſtion, and with the beſt of their ſkill caſt up the account upon the whole evidence; and thus having once found on which ſide

the probability appeared to them, after as full and exact an inquiry as they can make, they lay up the conclusion in their memories as a truth they have discovered; and for the future they remain satisfied with the testimony of their memories, that this is the opinion, that by the proofs they have once seen of it, deserves such a *degree* of their *assent* as they afford it.

§ 2. *These cannot always be actually in view, and then we must content ourselves with the remembrance that we once saw ground for such a degree of Assent.*

This is all that the greatest part of men are capable of doing, in regulating their *opinions* and judgments; unless a man will exact of them, either to retain distinctly in their memories all the proofs concerning any probable truth, and that too in the same order and regular deduction of consequences in which they have formerly placed or seen them, which sometimes is enough to fill a large volume upon one single question; or else they must require a man, for every opinion that he embraces, every day to examine the proofs, both which are impossible. It is unavoidable, therefore, that the memory be relied on in the case, and that *men be persuaded of several opinions, whereof the proofs are not actually in their thoughts*, nay, which perhaps they are not able actually to recal. Without this, the greatest part of men must be either very sceptics, or change every moment, and yield themselves up to whoever, having lately studied the question, offers them arguments, which, for want of memory, they are not able presently to answer.

§ 3. *The ill consequence of this, if our former Judgment were not rightly made.*

I cannot but own, that mens *sticking* to their *past judgment*, and adhering firmly to conclusions formerly made, is often the cause of great obstinacy in error and mistake; but the fault is not that they rely on their memories for what they have before well judged, but because they judged before they had well examined. May we not find a great number (not to say the greatest part) of men, that think they have formed right judgments of several matters, and that for no other reason,

but because they never thought otherwise? that imagine themselves to have judged right, only because they never questioned, never examined their own opinions? which is indeed to think they judged right, because they never judged at all; and yet these of all men hold their opinions with the greatest stiffness; those being generally the most fierce and firm in their tenets, who have least examined them. What we once know, we are certain is so, and we may be secure that there are no latent proofs undiscovered, which may overturn our knowledge, or bring it in doubt; but in matters of probability, it is not in every case we can be sure that we have all the particulars before us that any way concern the question, and that there is no evidence behind, and yet unseen, which may cast the probability on the other side, and outweigh all that at present seems to preponderate with us. Who almost is there that hath the leisure, patience, and means, to collect together all the proofs concerning most of the opinions he has, so as safely to conclude that he hath a clear and full view, and that there is no more to be alleged for his better information? and yet we are forced to determine ourselves on the one side or other. The conduct of our lives, and the management of our great concerns, will not bear delay, for those depend, for the most part, on the determination of our judgment in points wherein we are not capable of certain and demonstrative knowledge, and wherein it is necessary for us to embrace the one side or the other.

§ 4. *The right use of it, mutual Charity and Forbearance.*

Since, therefore, it is unavoidable to the greatest part of men, if not all, to have several *opinions*, without certain and indubitable proofs of their truths, (and it carries too great an imputation of ignorance, lightness, or folly, for men to quit and renounce their former tenets presently upon the offer of an argument, which they cannot immediately answer, and show the insufficiency of) it would methinks, become all men to maintain *peace*, and the common offices of humanity *and friendship*, *in the*

diverſity of opinions, ſince we cannot reaſonably expect that any one ſhould readily and obſequiouſly quit his own opinion, and embrace ours, with a blind reſignation to an authority, which the underſtanding of man acknowledges not; for however it may often miſtake, it can own no other guide but reaſon, nor blindly ſubmit to the will and dictates of another. If he, you would bring over to your ſentiments, be one that examines before he aſſents, you muſt give him leave at his leiſure to go over the account again, and recalling what is out of his mind, examine all the particulars, to ſee on which ſide the advantage lies; and if he will not think our arguments of weight enough to engage him a-new in ſo much pains, it is but what we do often ourſelves in the like caſe, and we ſhould take it amiſs if others ſhould preſcribe to us what points we ſhould ſtudy; and if he be one who takes his opinions upon truſt, how can we imagine that he ſhould renounce thoſe tenets which time and cuſtom have ſo ſettled in his mind, that he thinks them ſelf-evident, and of an unqueſtionable certainty, or which he takes to be impreſſions he has received from GOD himſelf, or from men ſent by him? How can we expect, I ſay, that opinions thus ſettled ſhould be given up to the arguments or authority of a ſtranger, or adverſary, eſpecially if there be any ſuſpicion of intereſt or deſign, as there never fails to be, where men find themſelves ill treated? We ſhould do well to commiſerate our mutual ignorance, and endeavour to remove it in all the gentle and fair ways of information, and not inſtantly treat others ill, as obſtinate and perverſe, becauſe they will not renounce their own, and receive our opinions, or at leaſt thoſe we would force upon them, when it is more than probable, that we are no leſs obſtinate in not embracing ſome of theirs. For where is the man that has inconteſtible evidence of the truth of all that he holds, or of the falſehood of all he condemns, or can ſay, that he has examined to the bottom all his own or other mens opinions? The neceſſity of believing without knowledge, nay, often upon very ſlight grounds, in this fleeting ſtate of action and

blindneſs we are in, ſhould make us more buſy and careful to inform ourſelves than conſtrain others; at leaſt, thoſe who have not thoroughly examined to the bottom all their own tenets, muſt confeſs they are unfit to preſcribe to others, and are unreaſonable in impoſing that as truth on other mens belief, which they themſelves have not ſearched into, nor weighed the arguments of probability, on which they ſhould receive or reject it. Thoſe who have fairly and truly examined, and are thereby got paſt doubt in all the doctrines they profeſs, and govern themſelves by, would have a juſter pretence to require others to follow them; but theſe are ſo few in number, and find ſo little reaſon to be magiſterial in their opinions, that nothing inſolent and imperious is to be expected from them; and there is reaſon to think, that if men were better inſtructed themſelves, they would be leſs impoſing on others.

§ 5. *Probability is either of Matter of Fact, or Speculation.*

But to return to the grounds of aſſent, and the ſeveral degrees of it, we are to take notice, that the propoſitions we receive upon inducements of *probability*, are *of two ſorts*; either concerning ſome particular exiſtence, or, as it is uſually termed, matter of fact, which falling under obſervation, is capable of human teſtimony; or elſe concerning things, which being beyond the diſcovery of our ſenſes, are not capable of any ſuch teſtimony.

§ 6. *The concurrent Experience of all other Men with ours, produces Aſſurance approaching to Knowledge.*

Concerning the *firſt* of theſe, *viz. particular matter of fact*,

Firſt, Where any particular thing, conſonant to the conſtant obſervation of ourſelves and others in the like caſe, comes atteſted by the concurrent reports of all that mention it, we receive it as eaſily, and build as firmly upon it, as if it were certain knowledge; and we reaſon and act thereupon with as little doubt, as if it were perfect demonſtration. Thus, if all *Engliſhmen*, who have occaſion to mention it, ſhould affirm that it froze in

England the laſt winter, or that there were ſwallows ſeen there in the ſummer, I think a man could almoſt as little doubt of it, as that ſeven and four are eleven. The firſt therefore, and *higheſt degree of probability*, is, when the general conſent of all men, in all ages, as far as it can be known, concurs with a man's conſtant and never-failing experience in like caſes, to confirm the truth of any particular matter of fact atteſted by fair witneſſes; ſuch are all the ſtated conſtitutions and properties of bodies, and the regular proceedings of cauſes and effects in the ordinary courſe of nature. This we call an argument from the nature of things themſelves; for what our own and other mens conſtant obſervation has found always to be after the ſame manner, that we with reaſon conclude to be the effects of ſteady and regular cauſes, though they come not within the reach of our knowledge: Thus, that fire warmed a man, made lead fluid, and changed the colour or conſiſtency in wood or charcoal; that iron ſunk in water, and ſwam in quickſilver; theſe, and the like propoſitions about particular facts, being agreeable to our conſtant experience, as often as we have to do with theſe matters, and being generally ſpoke of (when mentioned by others) as things found conſtantly to be ſo, and therefore not ſo much as controverted by any body, we are put paſt doubt, that a relation affirming any ſuch thing to have been, or any predication that it will happen again in the ſame manner, is very true. Theſe *probabilities* riſe ſo near to *certainty*, that they govern our thoughts as abſolutely, and influence all our actions as fully, as the moſt evident demonſtration; and in what concerns us, we make little or no difference between them and certain knowledge. Our belief thus grounded riſes to *aſſurance*.

§ 7. *Unqueſtionable Teſtimony and Experience for the moſt part produce Confidence.*

SECONDLY, The next degree of probability is, when I find by my own experience, and the agreement of all others that mention it, a thing to be for the moſt part ſo, and that the particular inſtance of it is atteſted by many and undoubted witneſſes, *v. g.* hiſtory giving us ſuch an ac-

count of men in all ages; and my own experience, as far as I had an opportunity to observe, confirming it, that most men prefer their private advantage to the public. If all historians that write of Tiberius, say that Tiberius did so, it is extremely probable; and in this case, our assent has a sufficient foundation to raise itself to a degree which we may call *confidence.*

§ 8. *Fair Testimony, and the nature of the thing indifferent, produces also confident Belief.*

Thirdly, In things that happen indifferently, as that a bird should fly this or that way; that it should thunder on a man's right or left hand, *&c.*; when any particular matter of fact is vouched by the concurrent testimony of unsuspected witnesses, there our assent is also unavoidable. Thus, that there is such a city in *Italy* as *Rome*; that about 1700 years ago, there lived in it a man called *Julius Cæsar*; that he was a general, and that he won a battle against another called *Pompey*; this, though in the nature of the thing there be nothing for nor against it, yet being related by historians of credit, and contradicted by no one writer, a man cannot avoid believing it, and can as little doubt of it, as he does of the being and actions of his own acquaintance, whereof he himself is a witness.

§ 9. *Experiences and Testimonies clashing, infinitely vary the degrees of Probability.*

Thus far the matter goes easy enough. Probability upon such grounds carries so much evidence with it, that it naturally determines the judgment, and leaves us as little liberty to believe or disbelieve, as a demonstration does whether we will know or be ignorant. The difficulty is, when testimonies contradict common experience, and the reports of history and witnesses clash with the ordinary course of nature, or with one another; there it is, where diligence, attention, and exactness is required, to form a right judgment, and to proportion the *assent* to the different evidence and probability of the thing, which rises and falls, according as those two foundations of credibility, *viz.* common observation in like cases, and particular testimonies in that particular

instance, favour or contradict it. These are liable to so great variety of contrary observations, circumstances, reports, different qualifications, tempers, designs, oversights, &c. of the reporters, that it is impossible to reduce to precise rules the various degrees wherein men give their assent. This only may be said in general, that as the arguments and proofs *pro* and *con*, upon due examination, nicely weighing every particular circumstance, shall to any one appear, upon the whole matter, in a greater or less degree, to preponderate on either side, so they are fitted to produce in the mind such different entertainment, as we call *belief*, *conjecture*, *guess*, *doubt*, *wavering*, *distrust*, *disbelief*, &c.

§ 10. *Traditional Testimonies, the farther removed, the less their Proof.*

This is what concerns *assent* in matters wherein testimony is made use of; concerning which I think it may not be amiss to take notice of a rule observed in the law of *England*, which is, that though the attested copy of record be good proof, yet the copy of a copy never so well attested, and by never so credible witnesses, will not be admitted as a proof in judicature. This is so generally approved as reasonable, and suited to the wisdom and caution to be used in our inquiry after material truths, that I never yet heard of any one that blamed it. This practice, if it be allowable in the decisions of right and wrong, carries this observation along with it, *viz.* that any testimony, the farther off it is from the original truth, the less force and proof it has. The being and existence of the thing itself, is what I call the original truth. A credible man vouching his knowledge of it is a good proof; but if another equally credible do witness it from his report, the testimony is weaker; and a third that attests the hearsay of an hearsay, is yet less considerable; so that *in traditional truths, each remove weakens the force of the proof*; and the more hands the tradition has successively passed through, the less strength and evidence does it receive from them. This I thought necessary to be taken notice of, because I find amongst some men the quite contrary commonly prac-

tiſed, who look on opinions to gain force by growing older; and what a thouſand years ſince would not, to a rational man contemporary with the firſt voucher, have appeared at all probable, is now urged as certain beyond all queſtion, only becauſe ſeveral have ſince, from him, ſaid it one after another. Upon this ground, propoſitions evidently falſe or doubtful enough in their firſt beginning, come by an inverted rule of probability to paſs for authentic truths; and thoſe which found or deſerved little credit from the mouths of their firſt authors, are thought to grow venerable by age, and are urged as undeniable.

§ 11. *Yet Hiſtory is of great uſe.*

I WOULD not be thought here to leſſen the credit and uſe of *hiſtory:* it is all the light we have in many caſes, and we receive from it a great part of the uſeful truths we have, with a convincing evidence. I think nothing more valuable than the records of antiquity; I wiſh we had more of them, and more uncorrupted. But this truth itſelf forces me to ſay, that no *probability* can ariſe higher than its firſt original. What has no other evidence than the ſingle teſtimony of one only witneſs, muſt ſtand or fall by his only teſtimony, whether good, bad, or indifferent; and though cited afterwards by hundreds of others, one after another, is ſo far from receiving any ſtrengh thereby, that it is only the weaker. Paſſion, intereſt, inadvertency, miſtake of his meaning, and a thouſand odd reaſons or caprichios mens minds are acted by (impoſſible to be diſcovered), may make one man quote another man's words or meaning wrong. He that has but ever ſo little examined the citations of writers, cannot doubt how little credit the quotations deſerve, where the originals are wanting, and conſequently how much leſs quotations of quotations can be relied on. This is certain, that what in one age was affirmed upon ſlight grounds, can never after come to be more valid in future ages, by being often repeated; but the farther ſtill it is from the original, the leſs valid it is, and has always leſs force in the mouth or writing of him that laſt made uſe of it, than in his from whom he received it.

§ 12. *In things which Sense cannot discover, Analogy is the great Rule of Probability.*

THE probabilities we have hitherto mentioned, are only such as concern matter of fact, and such things as are capable of observation and testimony. There remains that other sort, *concerning* which men entertain opinions with variety of assent, though the *things* be such, *that falling not under the reach of our senses, they are not capable of testimony.* Such are, 1. The existence, nature, and operations of finite immaterial beings without us, as spirits, angels, devils, &c. or the existence of material beings, which either for their smallness in themselves, or remoteness from us, our senses cannot take notice of, as whether there be any plants, animals, and intelligent inhabitants in the planets, and other mansions of the vast universe. 2. Concerning the manner of operation in most parts of the works of nature, wherein, though we see the sensible effects, yet their causes are unknown, and we perceive not the ways and manner how they are produced. We see animals are generated, nourished, and move; the loadstone draws iron; and the parts of a candle successively melting, turn into flame, and give us both light and heat. These and the like effects we see and know; but the causes that operate, and the manner they are produced in, we can only guess, and probably conjecture; for these and the like coming not within the scrutiny of human senses, cannot be examined by them, or be attested by any body, and therefore can appear more or less probable only as they more or less agree to truths that are established in our minds, and as they hold proportion to other parts of our knowledge and observation. *Analogy* in these matters is the only help we have, and it is from that alone we draw all our grounds of probability. Thus observing that the bare rubbing of two bodies violently one upon another produces heat, and very often fire itself, we have reason to think, that what we call heat and fire consists in a violent agitation of the imperceptible minute parts of the burning matter: observing likewise that the different refractions of pellucid bodies produce in our eyes the dif-

ferent appearances of several colours; and also that the different ranging and laying the superficial parts of several bodies, as of velvet, watered silk, &c. does the like, we think it probable that the colour and shining of bodies is in them nothing but the different arrangement and refraction of their minute and insensible parts. Thus finding in all parts of the creation, that fall under human observation, that there is a gradual connection of one with another, without any great or discernible gaps between, in all that great variety of things we see in the world, which are so closely linked together, that in the several ranks of beings, it is not easy to discover the bounds betwixt them; we have reason to be persuaded, that by such gentle steps things ascend upwards in degrees of perfection. It is a hard matter to say where sensible and rational begin, and where insensible and irrational end: and who is there quick-sighted enough to determine precisely, which is the lowest species of living things, and which the first of those which have no life? Things, as far as we can observe, lessen and augment, as the quantity does in a regular cone, where, though there be a manifest odds betwixt the bigness of the diameter at a remote distance, yet the difference between the upper and under, where they touch one another, is hardly discernible. The difference is exceeding great between some men, and some animals; but if we will compare the understanding and abilities of some men and some brutes, we shall find so little difference, that it will be hard to say that that of the man is either clearer or larger. Observing, I say, such gradual and gentle descents downwards in those parts of the creation that are beneath men, the rule of analogy may make it probable, that it is so also in things above us and our observation, and that there are several ranks of intelligent beings, excelling us in several degrees of perfection, ascending upwards towards the infinite perfection of the Creator by gentle steps and differences, that are every one at no great distance from the next to it. This sort of probability, which is the best conduct of rational experiments, and the rise of hypotheses, has also its use and influence;

and a wary reasoning from analogy, leads us often into the discovery of truths and useful productions, which would otherwise lie concealed.

§ 13. *One Case where contrary Experience lessens not the Testimony.*

THOUGH the common experience and the ordinary course of things have justly a mighty influence on the minds of men, to make them give or refuse credit to any thing proposed to their belief, yet there is one case, wherein the strangeness of the fact lessens not the assent to a fair testimony given of it: For where such supernatural events are suitable to ends aimed at by him, who has the power to change the course of nature, there, under such circumstances, they may be the fitter to procure belief, by how much the more they are beyond or contrary to ordinary observation. This is the proper case of *miracles*, which well attested, do not only find credit themselves, but give it also to other truths which need such confirmation.

§ 14. *The bare Testimony of Revelation is the highest Certainty.*

BESIDES those we have hitherto mentioned, there is one sort of propositions that challenge the highest degree of our assent upon bare testimony, whether the thing proposed agree or disagree with common experience, and the ordinary course of things or no; the reason whereof is, because the testimony is of such an one as cannot deceive nor be deceived, and that is of GOD himself. This carries with it assurance beyond doubt, evidence beyond exception. This is called by a peculiar name *revelation*, and our assent to it *faith*; which as absolutely determines our minds, and as perfectly excludes all wavering, as our knowledge itself; and we may as well doubt of our own being, as we can whether any revelation from GOD be true. So that faith is a settled and sure principle of assent and assurance, and leaves no manner of room for doubt or hesitation; only we must be sure, that it be a divine revelation, and that we understand it right, else we shall expose ourselves to all the extravagancy of enthusiasm, and all the error of wrong principles, if we have faith and assurance in what is not

divine revelation: And therefore in thoſe caſes our aſſent can be rationally no higher than the evidence of its being a revelation, and that this is the meaning of the expreſſions it is delivered in. If the evidence of its being a revelation, or that this is its true ſenſe, be only on probable proofs, our aſſent can reach no higher than aſſurance or diffidence, ariſing from the more or leſs apparent probability of the proofs. But of faith, and the precedency it ought to have before other arguments of perſuaſion, I ſhall ſpeak more hereafter, where I treat of it, as it is ordinarily placed, in contradiſtinction to reaſon, though in truth it be nothing elſe but an aſſent founded on the higheſt reaſon.

CHAP. XVII.

OF REASON.

§ 1. *Various Significations of the word Reaſon.*

THE word *reaſon*, in the *Engliſh* language, has *different ſignifications*; ſometimes it is taken for true and clear principles, ſometimes for clear and fair deductions from thoſe principles, and ſometimes for the cauſe, and particularly the final cauſe; but the conſideration I ſhall have of it here, is in a ſignification different from all theſe, and that is, as it ſtands for a faculty in man, that faculty whereby man is ſuppoſed to be diſtinguiſhed from beaſts, and wherein it is evident he much ſurpaſſes them.

§ 2. *Wherein Reaſoning conſiſts.*

IF general knowledge, as has been ſhown, conſiſts in a perception of the agreement or diſagreement of our own *ideas*, and the knowledge of the exiſtence of all things without us (except only of a GOD, whoſe exiſtence every man may certainly know and demonſtrate to himſelf from his own exiſtence) be had only by our ſenſes, what room then is there for the exerciſe of any other faculty, but outward ſenſe and inward perception? What need is there of reaſon? Very much, both for the enlargement of our knowledge, and regulating our aſſent; for it hath to do both in knowledge and opinion, and is

neceſſary and aſſiſting to all our other intellectual faculties, and indeed contains two of them, *viz. ſagacity and illation;* by the one it finds out, and by the other it ſo orders the intermediate *ideas*, as to diſcover what connection there is in each link of the chain whereby the extremes are held together, and thereby, as it were, to draw into view the truth ſought for, which is that we call *illation* or *inference*, and conſiſts in nothing but the perception of the connection there is between the *ideas* in each ſtep of the deduction, whereby the mind comes to ſee either the certain agreement or diſagreement of any two *ideas*, as in demonſtration, in which it arrives at knowledge, or their probable connection, on which it gives or withholds its aſſent, as in opinion. Senſe and intuition reach but a very little way. The greateſt part of our knowledge depends upon deductions and intermediate *ideas;* and in thoſe caſes where we are fain to ſubſtitute aſſent inſtead of knowledge, and take propoſitions for true, without being certain they are ſo, we have need to find out, examine, and compare the grounds of their probability. In both theſe caſes, the faculty which finds out the means, and rightly applies them to diſcover certainty in the one, and probability in the other, is that which we call reaſon; for as reaſon perceives the neceſſary and indubitable connection of all the *ideas* or proofs one to another, in each ſtep of any demonſtration that produces knowledge, ſo it likewiſe perceives the probable connection of all the *ideas* or proofs one to another in every ſtep of a diſcourſe to which it will think aſſent due. This is the loweſt degree of that which can be truly called reaſon; for where the mind does not perceive this probable connection, where it does not diſcern whether there be any ſuch connection or no, there mens opinions are not the product of judgment, or the conſequence of reaſon, but the effects of chance and hazard, of a mind floating at all adventures, without choice, and without direction.

§ 3. *Its four Parts.*

So that we may in *reaſon* conſider theſe *four degrees;* the firſt and higheſt, is the diſcovering and finding out

of proofs; the second, the regular and methodical disposition of them, and laying them in a clear and fit order, to make their connection and force be plainly and easily perceived; the third is the perceiving their connection; and the fourth, a making a right conclusion. These several degrees may be observed in any mathematical demonstration, it being one thing to perceive the connection of each part, as the demonstration is made by another; another to perceive the dependence of the conclusion on all the parts; a third, to make out a demonstration clearly and neatly one's self; and something different from all these, to have first found out those intermediate *ideas* or proofs by which it is made.

§ 4. *Syllogism not the great Instrument of Reason.* THERE is one thing more, which I shall desire to be considered concerning reason; and that is, whether *syllogism*, as is generally thought, be the proper instrument of it, and the usefullest way of exercising this faculty. The causes I have to doubt are these:

First, Because syllogism serves our reason but in one only of the fore-mentioned parts of it, and that is, to show the connection of the proofs in any one instance, and no more; but in this it is of no great use, since the mind can perceive such connection where it really is, as easily; nay, perhaps better without it.

If we will observe the actings of our own minds, we shall find that we reason best and clearest, when we only observe the connection of the proof, without reducing our thoughts to any rule of syllogism; and therefore we may take notice, that there are many men that reason exceeding clear and rightly, who know not how to make a syllogism. He that will look into many parts of *Asia* and *America*, will find men reason there perhaps as acutely as himself, who yet never heard of a syllogism, nor can reduce any one argument to those forms; and I believe scarce any one ever makes syllogisms in reasoning within himself. Indeed syllogism is made use of on occasion, to discover a fallacy hid in a rhetorical flourish, or cunningly wrapped up in a smooth period; and stripping an absurdity of the cover of wit

and good language, ſhow it in its naked deformity. But the weakneſs or fallacy of ſuch a looſe diſcourſe, it ſhows by the artificial form it is put into, only to thoſe who have thoroughly ſtudied *mode* and *figure*, and have ſo examined the many ways that three propoſitions may be put together, as to know which of them does certainly conclude right, and which not, and upon what grounds it is that they do ſo. All who have ſo far conſidered *ſyllogiſm*, as to ſee the reaſon why, in three propoſitions laid together in one form, the concluſion will be certainly right, but in another, not certainly ſo, I grant are certain of the concluſions they draw from the premiſes in the allowed *modes* and *figures*; but they who have not ſo far looked into thoſe forms, are not ſure by virtue of ſyllogiſm, that the concluſion certainly follows from the premiſes; they only take it to be ſo by an implicit faith in their teachers, and a confidence in thoſe forms of argumentation; but this is ſtill but believing, not being certain. Now if, of all mankind, thoſe who can make ſyllogiſms are extremely few in compariſon of thoſe who cannot; and if of thoſe few who have been taught logic, there is but a very ſmall number who do any more than believe that ſyllogiſms in the allowed *modes* and *figures* do conclude right, without knowing certainly that they do ſo; if ſyllogiſms muſt be taken for the only proper inſtrument of reaſon and means of knowledge; it will follow, that before *Ariſtotle* there was not one man that did or could know any thing by reaſon; and that ſince the invention of ſyllogiſms, there is not one of ten thouſand that doth.

But God has not been ſo ſparing to men to make them barely two-legged creatures, and left it to *Ariſtotle* to make them rational; *i. e.* thoſe few of them that he could get ſo to examine the grounds of ſyllogiſms, as to ſee that in above threeſcore ways that three propoſitions may be laid together, there are but about fourteen wherein one may be ſure that the concluſion is right, and upon what ground it is, that in theſe few the concluſion is certain, and in the other not. God has been more bountiful to mankind than ſo: He has given them

a mind that can reaſon, without being inſtructed in methods of ſyllogiſing; the underſtanding is not taught to reaſon by theſe rules; it has a native faculty to perceive the coherence or incoherence of its *ideas*, and can range them right, without any ſuch perplexing repetitions. I ſay not this any way to leſſen Ariſtotle, whom I look on as one of the greateſt men amongſt the ancients, whoſe large views, acuteneſs and penetration of thought, and ſtrength of judgment, few have equalled; and who in this very invention of forms of argumentation, wherein the concluſion may be ſhown to be rightly inferred, did great ſervice againſt thoſe who were not aſhamed to deny any thing; and I readily own, that all right reaſoning may be reduced to his forms of ſyllogiſm; but yet I think, without any diminution to him, I may truly ſay, that they are not the only nor the beſt way of reaſoning, for the leading of thoſe into truth who are willing to find it, and deſire to make the beſt uſe they may of their reaſon, for the attainment of knowledge; and he himſelf, it is plain, found out ſome forms to be concluſive and others not, not by the forms themſelves, but by the original way of knowledge, *i. e.* by the viſible agreement of *ideas*. Tell a country gentlewoman that the wind is ſouth-weſt, and the weather lowering, and like to rain, and ſhe will eaſily underſtand it is not ſafe for her to go abroad thin clad in ſuch a day, after a fever; ſhe clearly ſees the probable connection of all theſe, viz. ſouth-weſt wind, and clouds, rain, wetting, taking cold, relapſe, and danger of death, without tying them together in thoſe artificial and cumberſome fetters of ſeveral ſyllogiſms, that clog and hinder the mind, which proceeds from one part to another quicker and clearer without them; and the probability which ſhe eaſily perceives in things thus in their native ſtate would be quite loſt, if this argument were managed learnedly, and propoſed in mode and figure; for it very often confounds the connection. And, I think, every one will perceive in mathematical demonſtra-

tions, that the knowledge gained thereby comes ſhorteſt and cleareſt without ſyllogiſms.

Inference is looked on as the great act of the rational faculty, and ſo it is when it is rightly made; but the mind, either very deſirous to enlarge its knowledge, or very apt to favour the ſentiments it has once imbibed, is very forward to make inferences, and therefore often makes too much haſte before it perceives the connection of the *ideas* that muſt hold the extremes together.

To infer, is nothing but by virtue of one propoſition laid down as true, to draw in another as true, *i. e.* to ſee or ſuppoſe ſuch a connection of the two *ideas* of the inferred propoſition: *v. g.* Let this be the propoſition laid down, *men ſhall be puniſhed in another world*, and from thence be inferred this other, *then men can determine themſelves*. The queſtion now is to know whether the mind has made this inference right or no; if it has made it by finding out the intermediate *ideas*, and taking a view of the connection of them, placed in a due order, it has proceeded rationally, and made a right inference; if it has done it without ſuch a view, it has not ſo much made an inference that will hold, or an inference of right reaſon, as ſhowing a willingneſs to have it be, or be taken for ſuch; but in neither caſe is it *ſyllogiſm* that diſcovered thoſe *ideas*, or ſhowed the connection of them, for they muſt be both found out, and the connection every where perceived, before they can rationally be made uſe of in *ſyllogiſm*; unleſs it can be ſaid that any *idea*, without conſidering what connection it hath with the two other, whoſe agreement ſhould be ſhown by it, will do well enough in a *ſyllogiſm*, and may be taken at a venture for the *medius terminus*, to prove any concluſion; but this nobody will ſay, becauſe it is by virtue of the perceived agreement of the intermediate *idea* with the extremes, that the extremes are concluded to agree; and therefore each intermediate *idea* muſt be ſuch, as in the whole chain hath a viſible connection with thoſe two it is placed between, or elſe there-

by the conclusion cannot be inferred or drawn in; for wherever any link of the chain is loose, and without connection, there the whole strength of it is lost, and it hath no force to infer or draw in any thing. In the instance above-mentioned, what is it shows the force of the inference, and consequently the reasonableness of it, but a view of the connection of all the intermediate *ideas* that draw in the conclusion, or proposition inferred? *v. g. Men shall be punished,—God the punisher,—just punishment,—the punished guilty,—could have done otherwise,—freedom,—self-determination;* by which chain of *ideas* thus visibly linked together in train, *i. e.* each intermediate *idea* agreeing on each side with those two it is immediately placed between, the *ideas* of men and self-determination appear to be connected; *i. e.* this proposition, *men can determine themselves*, is drawn in or inferred from this, *that they shall be punished in the other world;* for here mind seeing the connection there is between the *idea of mens punishment in the other world*, and the *idea of God punishing*. between *justice of punishment* and *guilt*, between *guilt* and a *power to do otherwise*, between a *power to do otherwise* and *freedom*, and between *freedom* and *self-determination*, sees the connection between *men* and *self-determination*.

Now I ask, whether the connection of the extremes be not more clearly seen in this simple and natural disposition, than in the perplexed repetitions and jumble of five or six *syllogisms*. I must beg pardon for calling it jumble, till somebody shall put these *ideas* into so many *syllogisms*, and then say that they are less jumbled, and their connection more visible when they are transposed and repeated, and spun out to a greater length in artificial forms, than in that short natural plain order they are laid down in here, wherein every one may see it, and wherein they must be seen before they can be put into a train of *syllogisms;* for the natural order of the connecting *ideas* must direct the order of the *syllogisms*, and a man must see the connection of each intermediate *idea* with those that it

connects, before he can with reason make use of it in a *syllogism*; and when all those syllogisms are made, neither those that are, nor those that are not logicians will see the force of the argumentation, *i. e.* the connection of the extremes, one jot the better; [for those that are not men of art, not knowing the true forms of *syllogism*, nor the reasons of them, cannot know whether they are made in right and conclusive *modes* and *figures* or no, and so are not at all helped by the forms they are put into, though by them the natural order wherein the mind could judge of their respective connection being disturbed, renders the illation much more uncertain than without them]; and as for logicians themselves, they see the connection of each intermediate *idea* with those it stands between (on which the force of the inference depends), as well before as after the *syllogism* is made, or else they do not see it at all; for a *syllogism* neither shows nor strengthens the connection of any two *ideas* immediately put together, but only by the connection seen in them, shows what connection the extremes have one with another; but what connection the intermediate has with either of the extremes in that syllogism, that no syllogism does or can show; that the mind only doth or can perceive, as they stand there in that *juxta-position* only by its own view, to which the syllogistical form it happens to be in gives no help or light at all; it only shows, that if the intermediate *idea* agrees with those it is on both sides immediately applied to, then those two remote ones, or as they are called, *extremes*, do certainly agree, and therefore the immediate connection of each *idea* to that which it is applied to on each side, on which the force of the reasoning depends, is as well seen before as after the *syllogism* is made, or else he that makes the syllogism could never see it at all. This, as has been already observed, is seen only by the eye, or the perceptive faculty of the mind, taking a view of them laid together in a *juxta-position*; which view of any two it has equally, whenever they are laid together in

any propoſition, whether that propoſition be placed as a *major* or a *minor*, in a ſyllogiſm or no.

Of what uſe then are *ſyllogiſms?* I anſwer, Their chief and main uſe is in the ſchools, where men are allowed without ſhame to deny the agreement of *ideas* that do manifeſtly agree; or out of the ſchools, to thoſe who from thence have learned without ſhame to deny the connection of *ideas* which even to themſelves is viſible. But to an ingenious ſearcher after truth, who has no other aim but to find it, there is no need of any ſuch form to force the allowing of the inference; the truth and reaſonableneſs of it is better ſeen in ranging of the *ideas* in a ſimple and plain order; and hence it is that men, in their own inquiries after truth, never uſe *ſyllogiſms* to convince themſelves, [or in teaching others to inſtruct willing learners]; becauſe, before they can put them into a *ſyllogiſm*, they muſt ſee the connection that is between the intermediate *idea* and the two other *ideas* it is ſet between and applied to, to ſhow their agreement; and when they ſee that, they ſee whether the inference be good or no, and ſo *ſyllogiſm* comes too late to ſettle it. For to make uſe again of the former inſtance, I aſk whether the mind, conſidering the *idea* of juſtice, placed as an intermediate *idea* between the *puniſhment* of men, and the guilt of the puniſhed (and till it does ſo conſider it, the mind cannot make uſe of it as a *medius terminus*), does not as plainly ſee the force and ſtrength of the inference, as when it is formed into ſyllogiſm? To ſhow it in a very plain and eaſy example, let *animal* be the intermediate *idea* or *medius terminus* that the mind makes uſe of to ſhow the connection of *homo* and *vivens;* I aſk whether the mind does not more readily and plainly ſee that connection in the ſimple and proper poſition of the connecting *idea* in the middle; thus,

Homo——animal——vivens,

than in this perplexed one,

Animal——vivens——homo——animal;

which is the poſition theſe *ideas* have in a ſyllogiſm, to ſhow the connection between *homo* and *vivens* by the intervention of *animal.*

Indeed ſyllogiſm is thought to be of neceſſary uſe, even to the lovers of truth, to ſhow them the fallacies that are often concealed in florid, witty, or involved diſcourſes. But that is a miſtake, will appear, if we conſider, that the reaſon why ſometimes men who ſincerely aim at truth, are impoſed upon by ſuch looſe, and as they are called rhetorical diſcourſes, is, that their fancies being ſtruck with ſome lively metaphorical repreſentations, they neglect to obſerve, or do not eaſily perceive, what are the true *ideas* upon which the inference depends. Now, to ſhow ſuch men the weakneſs of ſuch an argumentation, there needs no more but to ſtrip it of the ſuperfluous *ideas,* which blended and confounded with thoſe on which the inference depends, ſeem to ſhow a connection where there is none, or at leaſt do hinder the diſcovery of the want of it, and then to lay the naked *ideas* on which the force of the argumentation depends, in their due order; in which poſition, the mind taking a view of them, ſees what connection they have, and ſo is able to judge of the inference, without any need of a ſyllogiſm at all.

I gnant that *mode* and *figure* is commonly made uſe in ſuch caſes, as if the detection of the incoherence of ſuch looſe diſcourſes were wholly owing to the ſyllogiſtical form; and ſo I myſelf formerly thought, till upon a ſtricter examination I now find, that laying the intermediate *ideas* naked in their due order, ſhows the incoherence of the argumentation better than ſyllogiſm, not only as ſubjecting each link of the chain to the immediate view of the mind in its proper place, whereby its connection is beſt obſerved, but alſo becauſe ſyllogiſm ſhows the incoherence only to thoſe (who are not one of ten thouſand) who perfectly underſtand *mode* and *figure*, and the reaſon upon which thoſe forms are eſtabliſhed; whereas a due and orderly placing of the *ideas* upon which the inference is made,

makes every one, whether logician or not logician, who understands the terms, and hath the faculty to perceive the agreement or disagreement of such *ideas* (without which, in or out of syllogism, he cannot perceive the strength or weakness, coherence or incoherence of the discourse), see the want of connection in the argumentation, and the absurdity of the inference.

And thus I have known a man unskilful in syllogism, who at first hearing could perceive the weakness and inconclusiveness of a long, artificial and plausible discourse, wherewith others better skilled in syllogism have been misled; and I believe there are few of my readers who do not know such. And indeed if it were not so, the debates of most princes councils, and the business of assemblies, would be in danger to be mismanaged, since those who are relied upon, and have usually a great stroke in them, are not always such who have the good luck to be perfectly knowing in the forms of *syllogism*, or expert in *mode* and *figure*. And if syllogism were the only, or so much as the surest way to detect the fallacies of artificial discourses, I do not think that all mankind, even princes, in matters that concern their crowns and dignities, are so much in love with falsehood and mistake, that they would every where have neglected to bring syllogism into the debates of moment, or thought it ridiculous so much as to offer them in affairs of consequence; a plain evidence to me, that men of parts and penetration, who were not idly to dispute at their ease, but were to act according to the result of their debates, and often pay for their mistakes with their heads and fortunes, found those scholastic forms were of little use to discover truth or fallacy, whilst both the one and the other might be shown, and better shown without them, to those who would not refuse to see what was visibly shown them.

Secondly, Another reason that makes me doubt whether syllogism be the only proper instrument of reason in the discovery of truth is, that of whatever

use *mode* and *figure* is pretended to be in the laying open of fallacy (which has been above considered), those scholastic forms of discourse are not less liable to fallacies than the plainer ways of argumentation; and for this I appeal to common observation, which has always found these artificial methods of reasoning more adapted to catch and entangle the mind, than to instruct and inform the understanding. And hence it is that men, even when they are baffled and silenced in this scholastic way, are seldom or never convinced, and so brought over to the conquering side; they perhaps acknowledge their adversary to be the more skilful disputant, but rest nevertheless persuaded of the truth on their side, and go away, worsted as they are, with the same opinion they brought with them; which they could not do, if this way of argumentation carried light and conviction with it, and made men see where the truth lay; and therefore syllogism has been thought more proper for the attaining victory in dispute, than for the discovery or confirmation of truth in fair inquiries. And if it be certain that fallacy can be couched in syllogisms, as it cannot be denied, it must be something else, and not syllogism that must discover them.

I have had experience how ready some men are, when all the use which they have been wont to ascribe to any thing is not allowed, to cry out, that I am for laying it wholly aside. But to prevent such unjust and groundless imputations, I tell them, that I am not for taking away any helps to the understanding in the attainment of knowledge. And if men skilled in and used to syllogisms find them assisting to their reason in the discovery of truth, I think they ought to make use of them. All that I aim at is, that they should not ascribe more to these forms than belongs to them, and think that men have no use, or not so full a use of their reasoning faculty without them. Some eyes want spectacles to see things clearly and distinctly; but let not those that use them therefore say, nobody can see clearly without them: those who do so will be

thought in favour with art (which perhaps they are beholden to) a little too much, to depress and discredit nature. Reason, by its own penetration, where it is strong and exercised, usually sees quicker and clearer without syllogism. If use of those spectacles has so dimmed its sight, that it cannot without them see consequences or inconsequences in argumentation, I am not so unreasonable as to be against the using them; every one knows what best fits his own sight; but let him not thence conclude all in the dark who use not just the same helps that he finds a need of.

§ 5. *Helps little in Demonstration, less in Probability.*

But however it be in knowledge, I think I may truly say, it is of *far* less, or *no use* at all *in probabilities*; for the assent there being to be determined by the preponderancy, after a due weighing of all the proofs, with all circumstances on both sides, nothing is so unfit to assist the mind in that as syllogism; which running away with one assumed probability, or one topical argument, pursues that till it has led the mind quite out of sight of the thing under consideration, and forcing it upon some remote difficulty, holds it fast there, entangled, perhaps, and as it were manacled in the chain of syllogisms, without allowing it the liberty, much less affording it the helps requisite to show on which side, all things considered, is the greater probability.

§ 6. *Serves not to increase our Knowledge, but fence with it.*

But let it help us (as perhaps may be said) in convincing men of their errors and mistakes (and yet I would fain see the man that was forced out of his opinion by dint of *syllogism*), yet still it fails *our reason* in that part, which, if not its highest perfection, is yet certainly its hardest task, and that which we most need its help in, and that is *the finding out of proofs, and making new discoveries.* The rules of *syllogism* serve not to furnish the mind with those intermediate *ideas* that may show the connection of remote

ones. This way of reaſoning diſcovers no new proofs, but is the art of marſhalling and ranging the old ones we have already. The 47th propoſition of the firſt book of Euclid is very true, but the diſcovery of it, I think, not owing to any rules of common logic. A man knows firſt, and then he is able to prove ſyllogiſtically; ſo that *ſyllogiſm* comes after knowledge, and then a man has little or no need of it; but it is chiefly by the finding out thoſe *ideas* that ſhow the connection of diſtant ones, that our ſtock of knowledge is increaſed, and that uſeful arts and ſciences are advanced. *Syllogiſm* at beſt is but the art of fencing with the little knowledge we have, without making any addition to it; and if a man ſhould employ his reaſon all this way, he will not do much otherwiſe than he, who having got ſome iron out of the bowels of the earth, ſhould have it beaten up all into ſwords, and put it into his ſervants hands to fence with, and bang one another. Had the king of Spain employed the hands of his people, and his Spaniſh iron ſo, he had brought to light but little of that treaſure that lay ſo long hid in the dark entrails of America: And I am apt to think, that he who ſhall employ all the force of his reaſon only in brandiſhing of *ſyllogiſms*, will diſcover very little of that maſs of knowledge which lies yet concealed in the ſecret receſſes of nature, and which I am apt to think native ruſtic reaſon (as it formerly has done) is likelier to open a way to, and add to the common ſtock of mankind, rather than any ſcholaſtic proceeding by the ſtrict rules of mode and figure.

§ 7. *Other Helps ſhould be ſought.*

I DOUBT not, nevertheleſs, but there are ways to be found to aſſiſt our reaſon in this moſt uſeful part; and this the judicious *Hooker* encourages me to ſay, who in his *Eccl. Pol. l.* 1. § 6. ſpeaks thus: *If there might be added the right helps of true art and learning, (which helps, I muſt plainly confeſs, this age of the world, carrying the name of a learned age, doth neither much know, nor generally regard), there would un-*

doubtedly be almost as much difference in maturity of judgment between men therewith inured, and that which now men are, as between men that are now, and innocents. I do not pretend to have found or discovered here any of those *right helps of art* this great man of deep thought mentions; but this is plain, that *syllogism*, and the logic now in use, which were as well known in his days, can be none of those he means. It is sufficient for me, if by a discourse, perhaps something out of the way, I am sure as to me wholly new and unborrowed, I shall have given an occasion to others to cast about for new discoveries, and to seek in their own thoughts for those *right helps of art*, which will scarce be found, I fear, by those who servilely confine themselves to the rules and dictates of others; for beaten tracks lead these sort of cattle (as an observing *Roman* calls them), whose thoughts reach only to imitation, *non quo eundum est, sed quo itur.* But I can be bold to say, that this age is adorned with some men of that strength of judgment, and largeness of comprehension, that if they would employ their thoughts on this subject, could open new and undiscovered ways to the advancement of knowledge.

§ 8. *We reason about Particulars.*

HAVING here had an occasion to speak of *syllogism* in general, and the use of it in reasoning, and the improvement of our knowledge, it is fit, before I leave this subject, to take notice of one manifest mistake in the rules of *syllogism, viz.* that no syllogistical reasoning can be right and conclusive, but what has at least one general proposition in it: As if we could not *reason* and have knowledge *about particulars;* whereas in truth, the matter rightly considered, the immediate object of all our reasoning and knowledge is nothing but particulars. Every man's reasoning and knowledge is only about the *ideas* existing in his own mind, which are truly every one of them particular existences, and our knowledge and reasoning about other things is only as they correspond with those our particular *ideas;* so that the perception of the agree-

ment or diſagreement of our particular *ideas*, is the whole and utmoſt of all our knowledge. Univerſality is but accidental to it, and conſiſts only in this, that the particular *ideas* about which it is, are ſuch as more than one particular thing can correſpond with and be repreſented by; but the perception of the agreement or diſagreement of any two *ideas*, and conſequently our knowledge, is equally clear and certain, whether either or both, or neither of thoſe *ideas*, be capable of repreſenting more real beings than one, or no. One thing more I crave leave to offer about ſyllogiſm before I leave it, *viz.* May one not upon juſt ground inquire whether the form ſyllogiſm now has, is that which in reaſon it ought to have? For the *medius terminus* being to join the extremes, *i. e.* the intermediate *ideas* by its intervention, to ſhow the agreement or diſagreement of the two in queſtion, would not the poſition of the *medius terminus* be more natural, and ſhow the agreement or diſagreement of the extremes clearer and better, if it were placed in the middle between them? Which might be eaſily done by tranſpoſing the propoſitions, and making the *medius terminus* the predicate of the firſt, and the ſubject of the ſecond. As thus,

Omnis homo eſt animal,
Omne animal eſt vivens,
Ergo omnis homo eſt vivens.

Omne corpus eſt extenſum et ſolidum,
Nullum extenſum et ſolidum eſt pura extenſio,
Ergo corpus non eſt pura extenſio.

I need not trouble my reader with inſtances in *ſyllogiſms*, whoſe concluſions are particular; the ſame reaſon holds for the ſame form in them, as well as in the general.

§ 9. 1. *Reaſon fails us for want of* Ideas. *REASON*, though it penetrates into the depths of the ſea and earth, elevates our thoughts as high as the

stars, and leads us through the vast spaces and large rooms of this mighty fabric, yet it comes far short of the real extent of even corporeal being; and there are many instances wherein it *fails us;* as,

First, It perfectly fails us, *where our* ideas *fail;* it neither does, nor can extend itself farther than they do; and therefore, wherever we have no *ideas*, our reasoning stops, and we are at an end of our reckoning; and if at any time we reason about words which do not stand for any *ideas*, it is only about those sounds, and nothing else.

§ 10. 2. *Because of obscure and imperfect* Ideas. *SECONDLY,* Our reason is often puzzled, and at a loss, *because of the obscurity, confusion, or imperfection of the* ideas *it is employed about*, and there we are involved in difficulties and contradictions. Thus, not having any perfect *idea* of the least extension of matter, nor of infinity, we are at a loss about the divisibility of matter; but having perfect, clear and distinct *ideas* of number, our reason meets with none of those inextricable difficulties in numbers, nor finds itself involved in any contradictions about them. Thus, we having but imperfect *ideas* of the operations of our minds, and of the beginning of motion or thought, how the mind produces either of them in us, and much imperfecter yet, of the operation of God, run into great difficulties about the free created agents, which reason cannot well extricate itself out of.

§ 11. 3. *For want of intermediate* Ideas. *THIRDLY,* Our reason is often at a stand, *because it perceives not those* ideas, *which could serve to show the certain or probable agreement or disagreement of any two other* ideas; and in this some mens faculties far outgo others. Till *algebra*, that great instrument and instance of human sagacity, was discovered, men with amazement looked on several of the demonstrations of ancient mathematicians, and could scarce forbear to think the finding several of those proofs to be something more than human.

§ 12. 4. *Because of wrong Principles.*

Fourthly, The mind, *by proceeding upon false principles*, is often engaged in absurdities and difficulties, brought into straits and contradictions, without knowing how to free itself; and in that case it is in vain to implore the help of reason, unless it be to discover the falsehood, and reject the influence of those wrong principles. Reason is so far from clearing the difficulties which the building upon false foundations brings a man into, that if he will pursue it, it entangles him the more, and engages him deeper in perplexities.

§ 13. 5. *Because of doubtful Terms.*

Fifthly, As obscure and imperfect *ideas* often involve our reason, so upon the same ground, do *dubious words* and uncertain signs *often* in discourses and arguings, when not warily attended to, *puzzle mens reason*, and bring them to a *nonplus*. But these two latter are our fault, and not the fault of reason; but yet the consequences of them are nevertheless obvious, and the perplexities or errors they fill mens minds with are every where observable.

§ 14. *Our highest Degree of Knowledge is intuitive, without Reasoning.*

Some of the *ideas* that are in the mind, are so there, that they can be by themselves immediately compared one with another; and in these the mind is able to perceive that they agree or disagree as clearly as that it has them. Thus the mind perceives that an arch of a circle is less than the whole circle, as clearly as it does the *idea* of a circle; and this therefore, as has been said, I call *intuitive knowledge*, which is certain beyond all doubt, and needs no probation, nor can have any, this being the highest of all human certainty. In this consists the evidence of all those *maxims*, which nobody has any doubt about, but every man (does not, as is said, only assent to, but) knows to be true, as soon as ever they are proposed to his understanding. In the discovery of and assent to these truths, there is no use of the discursive faculty, *no need of reasoning*, but they are known by a supe-

rior and higher degree of *evidence*. And such, if I may guess at things unknown, I am apt to think that angels have now, and the spirits of just men made perfect shall have, in a future state, of thousands of things, which now either wholly escape our apprehensions, or which, our short-sighted reason having got some faint glimpse of, we in the dark grope after.

§ 15. *The next is Demonstration by Reasoning.* But though we have here and there a little of this clear light, some sparks of bright knowledge, yet the greatest part of our *ideas* are such, that we cannot discern their agreement or disagreement by an immediate comparing them; and in all these we have *need of reasoning*, and must by discourse and inference make our discoveries. Now of these there are two sorts, which I shall take the liberty to mention here again.

First, Those whose agreement or disagreement, though it cannot be seen by an immediate putting them together, yet may be examined by the intervention of other *ideas* which can be compared with them. In this case, when the agreement or disagreement of the intermediate *idea* on both sides, with those which we would compare, is plainly discerned, there it amounts to demonstration, whereby knowledge is produced, which though it be certain, yet it is not so easy, nor altogether so clear as *intuitive knowledge*; because in that there is barely one simple intuition, wherein there is no room for any the least mistake or doubt; the truth is seen all perfectly at once. In demonstration, it is true, there is intuition too, but not altogether at once; for there must be a remembrance of the intuition of the agreement of the *medium*, or intermediate *idea*, with that we compared it with before, when we compare it with the other; and where there be many *mediums*, there the danger of the mistake is the greater; for each agreement or disagreement of the *ideas* must be observed and seen in each step of the whole train, and retained in the memory just as it is, and the mind must be sure that no part of

what is necessary to make up the demonstration is omitted or overlooked. This makes some demonstrations long and perplexed, and too hard for those who have not strength of parts distinctly to perceive, and exactly carry so many particulars orderly in their heads; and even those who are able to master such intricate speculations, are fain sometimes to go over them again, and there is need of more than one review before they can arrive at certainty. But yet where the mind clearly retains the intuition it had of the agreement of any *idea* with another, and that with a third, and that with a fourth, *&c.* there the agreement of the first and the fourth is a demonstration, and produces certain knowledge, which may be called *rational knowledge*, as the other is *intuitive*.

§ 16. *To supply the Narrowness of this, we have nothing but judgment upon probable reasoning.* SECONDLY, there are other *ideas* whose agreement or disagreement can no otherwise be judged of but by the intervention of others, which have not a certain agreement with the extremes, but an usual or likely one; and in these it is that the *judgment* is properly exercised, which is the acquiescing of the mind, that any *ideas* do agree, by comparing them with such probable *mediums*. This, though it never amounts to knowledge, no, not to that which is the lowest degree of it, yet sometimes the intermediate *ideas* tie the extremes so firmly together, and the probability is so clear and strong, that assent as necessarily follows it, as knowledge does demonstration. The great excellency and use of the judgment is to observe right, and take a true estimate of the force and weight of each probability, and then casting them up all right together, choose that side which has the overbalance.

§ 17. *Intuition, Demonstration, Judgment.* INTUITIVE *knowledge* is the perception of the certain agreement or disagreement of two *ideas* immediately compared together.

Rational knowledge is the perception of the certain agreement or disagreement of any two *ideas*, by the intervention of one or more other *ideas*.

Judgment is the thinking or taking two *ideas* to agree or disagree, by the intervention of one or more *ideas*, whose certain agreement or disagreement with them it does not perceive, but hath observed to be frequent and usual.

§ 18. *Consequences of Words, and Consequences of Ideas.*

THOUGH the deducing one proposition from another, or making *inferences in words*, be a great part of reason, and that which it is usually employed about, yet the principal act of ratiocination is the finding the agreement or disagreement of two *ideas* one with another, by the intervention of a third; as a man by a yard finds two houses to be of the same length, which could not be brought together to measure their equality by *juxta-position*. Words have their consequences, as the signs of such *ideas*; and things agree or disagree, as really they are; but we observe it only by our *ideas*.

§ 19. *Four Sorts of Arguments.*

BEFORE we quit this subject, it may be worth our while a little to reflect on *four sorts of arguments*, that men in their reasonings with others do ordinarily make use of to prevail on their assent, or at least so to awe them as to silence their opposition.

1. Ad Verecundiam.

First, The first is, to allege the opinions of men, whose parts, learning, eminency, power, or some other cause, has gained a name, and settled their reputation in the common esteem with some kind of authority. When men are established in any kind of dignity, it is thought a breach of modesty for others to derogate any way from it, and question the authority of men who are in possession of it. This is apt to be censured, as carrying with it too much of pride, when a man does not readily yield to the determination of approved authors, which is wont to be re-

ceived with respect and submission by others; and it is looked upon as insolence for a man to set up and adhere to his own opinion against the current stream of antiquity, or to put it in the balance against that of some learned doctor, or otherwise approved writer. Whoever backs his tenets with such authorities, thinks he ought thereby to carry the cause, and is ready to style it impudence in any one who shall stand out against them. This I think may be called *argumentum ad verecundiam.*

§ 20. 2. Ad Ignorantiam.

Secondly, Another way that men ordinarily use to drive others, and force them to submit their judgments, and receive the opinion in debate, is to require the adversary to admit what they allege as a proof, or to assign a better. And this I call *argumentum ad ignorantiam.*

§ 21. 3. Ad Hominem.

Thirdly, A third way is to press a man with consequences drawn from his own principles or concessions. This is already known under the name of *argumentum ad hominem.*

§ 22. 4. Ad Judicium.

Fourthly, The fourth is the using of proofs drawn from any of the foundations of knowledge or probability. This I call *argumentum ad judicium.* This alone of all the four brings true instruction with it, and advances us in our way to knowledge. For, 1. It argues not another man's opinion to be right, because I out of respect, or any other consideration but that of conviction, will not contradict him. 2. It proves not another man to be in the right way, nor that I ought to take the same with him, because I know not a better. 3. Nor does it follow that another man is in the right way, because he has shown me that I am in the wrong. I may be modest, and therefore not oppose another man's persuasion; I may be ignorant, and not be able to produce a better; I may be in an error, and another may show me that I am so; this may dispose me, perhaps, for the reception of truth,

but helps me not to it; that must come from proofs and arguments, and light arising from the nature of things themselves, and not from my shamefacedness, ignorance, or error.

§ 23. *Above, contrary, and according to Reason.* By what has been before said of *reason* we may be able to make some guess at the distinction of things, into those that are according to, above, and contrary to reason. 1. *According to reason* are such propositions whose truth we can discover by examining and tracing those *ideas* we have from *sensation* and *reflection*, and by natural deduction find to be true or probable. 2. *Above reason* are such propositions whose truth or probability we cannot by reason derive from those principles. 3. *Contrary to reason* are such propositions as are inconsistent with, or irreconcileable to our clear and distinct *ideas*. Thus the existence of one God is according to reason; the existence of more than one God contrary to reason; the resurrection of the dead above reason. Farther, as *above reason* may be taken in a double sense, *viz.* either as signifying above probability, or above certainty; so in that large sense also, *contrary to reason*, is, I suppose, sometimes taken.

§ 24. *Reason and Faith not opposite.* THERE is another use of the word *reason* wherein it is *opposed to faith*; which though it be in itself a very improper way of speaking, yet common use has so authorised it, that it would be folly either to oppose or hope to remedy it; only I think it may not be amiss to take notice, that however *faith* be opposed to reason, *faith* is nothing but a firm assent of the mind; which if it be regulated, as is our duty, cannot be afforded to any thing but upon good reason, and so cannot be opposite to it. He that believes, without having any reason for believing, may be in love with his own fancies, but neither seeks truth as he ought, nor pays the obedience due to his Maker, who would have him use those discerning faculties he has given him to keep him out of mistake and error. He that does

not this to the best of his power, however he sometimes lights on truth, is in the right but by chance, and I know not whether the luckiness of the accident will excuse the irregularity of his proceeding. This at least is certain, that he must be accountable for whatever mistakes he runs into; whereas he that makes use of the light and faculties God has given him, and seeks sincerely to discover truth by those helps and abilities he has, may have this satisfaction in doing his duty as a rational creature, that though he should miss truth, he will not miss the reward of it; for he governs his assent right, and places it as he should, who in any case or matter whatsoever believes or disbelieves according as reason directs him; he that does otherwise transgresses against his own light, and misuses those faculties which were given him to no other end but to search and follow the clearer evidence and greater probability. But since reason and faith are by some men opposed, we will so consider them in the following chapter.

CHAP. XVIII.

OF FAITH AND REASON, AND THEIR DISTINCT PROVINCES.

§ 1. *Necessary to know their boundaries.*

IT has been above shown, 1. That we are of necessity ignorant, and want knowledge of all sorts where we want *ideas*. 2. That we are ignorant, and want rational knowledge where we want proofs. 3. That we want general knowledge and certainty as far as we want clear and determined specific *ideas*. 4. That we want probability to direct our assent in matters where we have neither knowledge of our own, nor testimony of other men, to bottom our reason upon.

From these things thus premised, I think we may come to lay down the measures and *boundaries between faith and reason*, the want whereof may possibly have

been the cause, if not of great disorders, yet at least of great disputes, and perhaps mistakes in the world. For till it be resolved how far we are to be guided by reason, and how far by faith, we shall in vain dispute, and endeavour to convince one another in matters of religion.

§ 2. *Faith and Reason what, as contradistinguished.* I FIND every sect, as far as reason will help them, make use of it gladly; and where it fails them, they cry out, *It is matter of faith, and above reason.* And I do not see how they can argue with any one, or ever convince a gainsayer, who makes use of the same plea, without setting down strict boundaries between *faith* and *reason*, which ought to be the first point established in all questions where *faith* has any thing to do.

Reason therefore here, as contradistinguished to *faith*, I take to be the discovery of the certainty or probability of such propositions or truths which the mind arrives at by deduction made from such *ideas*, which it has got by the use of its natural faculties, *viz.* by sensation or reflection.

Faith, on the other side, is the assent to any proposition, not thus made out by the deductions of reason, but upon the credit of the proposer, as coming from God, in some extraordinary way of communication. This way of discovering truths to men we call *Revelation*.

§ 3. *No new simple Idea can be conveyed by traditional Revelation.*

FIRST, then I say, That *no man inspired by God can by any revelation communicate to others any new simple ideas*, which they had not before from sensation or reflection; for whatsoever impressions he himself may have from the immediate hand of God, this revelation, if it be of new simple *ideas*, cannot be conveyed to another either by words or any other signs; because words by their immediate operation on us cause no other *ideas* but of their natural sounds; and it is by the custom of using them for signs that they excite and

revive in our minds latent *ideas*, but yet only such *ideas* as were there before; for words seen or heard recal to our thoughts those *ideas* only, which to us they have been wont to be signs of, but cannot introduce any perfectly new, and formerly unknown simple *ideas*. The same holds in all other signs which cannot signify to us things, of which we have before never had any *idea* at all.

Thus, whatever things were discovered to St. Paul when he was wrapped up into the third heaven, whatever new *ideas* his mind there received, all the description he can make to others of that place is only this, that there are such things *as eye hath not seen, nor ear heard, nor hath it entered into the heart of man to conceive.* And supposing God should discover to any one, supernaturally, a species of creatures inhabiting, for example, *Jupiter* or *Saturn*, (for that it is possible there may be such, nobody can deny) which had six senses, and imprint on his mind the *ideas* conveyed to theirs by that sixth sense, he could no more by words produce in the minds of other men those *ideas*, imprinted by that sixth sense, than one of us could convey the *idea* of any colour by the sounds of words into a man, who having the other four senses perfect, had always totally wanted the fifth of seeing. For our simple *ideas* then, which are the foundation and sole matter of all our notions and knowledge, we must depend wholly on our reason, I mean our natural faculties, and can by no means receive them, or any of them, from *traditional revelation*; I say, *traditional revelation*, in distinction to *original revelation*. By the one, I mean that first impression which is made immediately by God on the mind of any man, to which we cannot set any bounds; and by the other, those impressions delivered over to others in words, and the ordinary ways of conveying our conceptions one to another.

§ 4. *Traditional Revelation may make us know Propositions knowable also by Reason, but not with the same Certainty that Reason doth.*

SECONDLY, I say, that *the same truths may be discovered, and conveyed down from revelation, which are discoverable to us by reason,* and by those *ideas* we naturally may have. So God might by revelation discover the truth of any proposition in Euclid, as well as men by the natural use of their faculties come to make the discovery themselves. In all things of this kind, there is little need or use of *revelation,* God having furnished us with natural and surer means to arrive at the knowledge of them; for whatsoever truth we come to the clear discovery of, from the knowledge and contemplation of our own *ideas,* will always be certainer to us than those which are conveyed to us by *traditional revelation;* for the knowledge we have that this *revelation* came at first from God, can never be so sure as the knowledge we have from the clear and distinct perception of the agreement or disagreement of our own *ideas; v. g.* if it were revealed some ages since that the three angles of a triangle were equal to two right ones, I might assent to the truth of that proposition, upon the credit of the tradition that it was revealed; but that would never amount to so great a certainty as the knowledge of it, upon the comparing and measuring my own *ideas* of two right angles, and the three angles of a triangle. The like holds in matter of fact, knowable by our senses; *v. g.* the history of the deluge is conveyed to us by writings, which had their original from revelation; and yet nobody, I think, will say he has as certain and clear a knowledge of the flood as Noah that saw it, or that he himself would have had, had he then been alive and seen it; for he has no greater an assurance than that of his senses, that it is writ in the book supposed writ by Moses inspired; but he has not so great an assurance that Moses writ that book, as if he had seen Moses write

it; so that the assurance of its being a revelation is less still than the assurance of his senses.

§ 5. *Revelation cannot be admitted against the clear Evidence of Reason.*

In propositions then, whose certainty is built upon the clear perception of the agreement or disagreement of our *ideas*, attained either by immediate intuition, as in self-evident propositions, or by evident deductions of reason in demonstrations, we need not the assistance of *revelation*, as necessary to gain our assent, and introduce them into our minds; because the natural ways of knowledge could settle them there, or had done it already, which is the greatest assurance we can possibly have of any thing, unless where God immediately reveals it to us; and there too our assurance can be no greater than our knowledge is, that it is a *revelation* from God. But yet nothing, I think, can under that title shake or overrule plain knowledge, or rationally prevail with any man to admit it for true, in a direct contradiction to the clear evidence of his own understanding; for since no evidence of our faculties, by which we receive such *revelations*, can exceed, if equal, the certainty of our intuitive knowledge, we can never receive for a truth any thing that is directly contrary to our clear and distinct knowledge; *v. g.* the *ideas* of one body and one place do so clearly agree, and the mind has so evident a perception of their agreement, that we can never assent to a proposition that affirms the same body to be in two distant places at once, however it should pretend to the authority of a divine *revelation*; since the evidence, *first*, that we deceive not ourselves in ascribing it to God; *secondly*, that we understand it right, can never be so great as the evidence of our own intuitive knowledge, whereby we discern it impossible for the same body to be in two places at once. And therefore *no proposition can be received for divine revelation*, or obtain the assent due to all such, *if it be contradictory to our clear intuitive knowledge*; because this would be to subvert the principles and

foundations of all knowledge, evidence and assent whatsoever; and there would be left no difference between truth and falsehood, no measures of credible and incredible in the world, if doubtful propositions shall take place before self-evident, and what we certainly know, give way to what we may possibly be mistaken in. In propositions, therefore, contrary to the clear perception of the agreement or disagreement of any of our *ideas*, it will be in vain to urge them as matters of *faith*; they cannot move our assent under that or any other title whatsoever; for *faith* can never convince us of any thing that contradicts our knowledge; because though *faith* be founded on the testimony of GOD (who cannot lie) revealing any proposition to us, yet we cannot have an assurance of the truth of its being a divine revelation, greater than our own knowledge, since the whole strength of the certainty depends upon our knowledge that GOD revealed it, which in this case, where the proposition supposed revealed contradicts our knowledge or reason, will always have this objection hanging to it, *viz.* that we cannot tell how to conceive that to come from GOD, the bountiful Author of our being, which if received for true, must overturn all the principles and foundations of knowledge he has given us, render all our faculties useless, wholly destroy the most excellent part of his workmanship, our understandings, and put a man in a condition, wherein he will have less light, less conduct than the beast that perisheth: For if the mind of man can never have a clearer (and perhaps not so clear) evidence of any thing to be a divine *revelation*, as it has of the principles of its own reason, it can never have a ground to quit the clear evidence of its reason, to give place to a proposition whose *revelation* has not a greater evidence than those principles have.

§ 6. *Traditional Revelation much less.*

THUS far a man has use of reason, and ought to hearken to it, even in immediate and original *revelation*, where it is supposed to be made to himself; but to all those who pretend not to immediate *revelation*, but are required to pay obedience, and to receive the truths revealed to

others, which by the tradition of writings, or word of mouth, are conveyed down to them, reason has a great deal more to do, and is that only which can induce us to receive them; for matter of faith being only divine revelation, and nothing else, *faith*, as we use the word, (called commonly *divine faith*) has to do with no propositions, but those which are supposed to be divinely revealed: So that I do not see how those who make revelation alone the sole object of *faith*, can say that it is a matter of *faith*, and not of *reason*, to believe that such or such a proposition, to be found in such or such a book, is of divine inspiration, unless it be revealed, that that proposition, or all in that book, was communicated by divine inspiration. With such a *revelation*, the believing or not believing that proposition or book to be of divine authority, can never be matter of *faith*, but matter of *reason*, and such as I must come to an assent to only by the use of my reason, which can never require or enable me to believe that which is contrary to itself; it being impossible for reason ever to procure any assent to that which to itself appears unreasonable.

In all things, therefore, where we have clear evidence from our *ideas*, and those principles of knowledge I have above-mentioned, *reason* is the proper judge; and *revelation*, though it may, in consenting with it, confirm its dictates, yet cannot in such cases invalidate its decrees: *Nor can we be obliged, where we have the clear and evident sentence of reason, to quit it for the contrary opinion, under a pretence that it is matter of faith*, which can have no authority against the plain and clear dictates of *reason*.

§ 7. *Things above Reason.*

But, *thirdly*, there being many things, wherein we have very imperfect notions, or none at all, and other things, of whose past, present, or future existence, by the natural use of our faculties we can have no knowledge at all; these, as being beyond the discovery of our natural faculties, and above *reason*, are, when revealed, *the proper matter of faith*. Thus, that part of the angels rebelled against GOD, and thereby lost their first happy

ſtate, and that the dead ſhall riſe and live again; theſe, and the like, being beyond the diſcovery of *reaſon*, are purely matters of *faith*, with which *reaſon* has directly nothing to do.

§ 8. *Or not contrary to Reaſon, if revealed, are matter of Faith.*

But ſince GOD in giving us the light of *reaſon* has not thereby tied up his own hands from affording us, when he thinks fit, the light of *revelation* in any of thoſe matters wherein our natural faculties are able to give a probable determination, *revelation*, where GOD has been pleaſed to give it, *muſt carry it againſt the probable conjectures of reaſon*; becauſe the mind not being certain of the truth of that it does not evidently know, but only yielding to the probability that appears in it, is bound to give up its aſſent to ſuch a teſtimony, which it is ſatisfied comes from one who cannot err, and will not deceive; but yet it ſtill belongs to *reaſon* to judge of the truth of its being a revelation, and of the ſignification of the words wherein it is delivered. Indeed, if any thing ſhall be thought *revelation* which is contrary to the plain principles of reaſon, and the evident knowledge the mind has of its own clear and diſtinct *ideas*, there *reaſon* muſt be hearkened to, as to a matter within its province; ſince a man can never have ſo certain a knowledge, that a propoſition which contradicts the clear principles and evidence of his own knowledge was divinely revealed, or that he underſtands the words rightly wherein it is delivered, as he has that the contrary is true; and ſo is bound to conſider and judge of it as a matter of *reaſon*, and not ſwallow it, without examination, as a matter of *faith*.

§ 9. *Revelation in Matters where Reaſon cannot judge, or but probably, ought to be hearkened to.*

First, Whatever propoſition is revealed, of whoſe truth our mind, by its natural faculties and notions, cannot judge, that is purely *matter of faith*, and above reaſon.

Secondly, All propoſitions, whereof the mind, by the uſe of its natural faculties, can come to determine and

judge from naturally acquired *ideas*, are *matter of reason*; with this difference ſtill, that in thoſe concerning which it has but an uncertain evidence, and ſo is perſuaded of their truth only upon probable grounds, which ſtill admit a poſſibility of the contrary to be true, without doing violence to the certain evidence of its own knowledge, and overturning the principles of all reaſon; in ſuch probable propoſitions, I ſay, an evident *revelation* ought to determine our aſſent even againſt probability. For where the principles of reaſon have not evidenced a propoſition to be certainly true or falſe, there clear *revelation*, as another principle of truth, and ground of aſſent, may determine; and ſo it may be matter of *faith*, and be alſo above *reaſon*; becauſe *reaſon*, in that particular matter, being able to reach no higher than probability, *faith* gave the determination, where *reaſon* came ſhort, and *revelation* diſcovered on which ſide the truth lay.

§ 10. *In Matters where Reaſon can afford certain Knowledge, that is to be hearkened to.*

THUS far the dominion of *faith* reaches, and that without any violence or hinderance to *reaſon*, which is not injured or diſturbed, but aſſiſted and improved by new diſcoveries of truth coming from the Eternal Fountain of all knowledge. Whatever GOD hath revealed is certainly true, no doubt can be made of it. This is the proper object of *faith*: But whether it be a divine revelation or no, *reaſon* muſt judge; which can never permit the mind to reject a greater evidence, to embrace what is leſs evident, nor allow it to entertain probability in oppoſition to knowledge and certainty. There can be no evidence, that any traditional revelation is of divine original, in the words we receive it, and in the ſenſe we underſtand it, ſo clear and ſo certain, as that of the principles of reaſon; and therefore, *nothing that is contrary to, and inconſiſtent with the clear and ſelf-evident dictates of reaſon, has a right to be urged or aſſented to as a matter of faith, wherein reaſon has nothing to do.* Whatſoever is divine *revelation*, ought to over-rule all our opinions, prejudices, and intereſts, and hath a right to be received

with full assent. Such a submission as this, of our *reason* to *faith*, takes not away the land-marks of knowledge; this shakes not the foundations of reason, but leaves us that use of our faculties, for which they were given us.

§ 11. *If the boundaries be not set between Faith and Reason, no Enthusiasm or Extravagancy in Religion can be contradicted.*

If the provinces of faith and reason are not kept distinct by these boundaries, there will, in matter of religion, be no room for *reason* at all, and those extravagant opinions and ceremonies that are to be found in the several religions of the world will not deserve to be blamed; for to this crying up of *faith*, in opposition to *reason*, we may, I think, in good measure ascribe those absurdities that fill almost all the religions which possess and divide mankind. For men having been principled with an opinion, that they must not consult *reason* in the things of religion, however apparently contradictory to common sense, and the very principles of all their knowledge, have let loose their fancies and natural superstition, and have been by them led into so strange opinions and extravagant practices in religion, that a considerate man cannot but stand amazed at their follies, and judge them so far from being acceptable to the great and wise GOD, that he cannot avoid thinking them ridiculous and offensive to a sober good man; so that in effect religion, which should most distinguish us from beasts, and ought most peculiarly to elevate us, as rational creatures, above brutes, is that wherein men often appear most irrational, and more senseless than beasts themselves. *Credo, quia impossibile est; I believe, because it is impossible*, might in a good man pass for a sally of zeal, but would prove a very ill rule for men to choose their opinions or religion by.

CHAP. XIX.

OF ENTHUSIASM.

§ 1. *Love of Truth necessary.*

HE that would seriously set upon the search of truth, ought in the first place to prepare his mind with a love of it; for he that loves it not, will not take much pains to get it, nor be much concerned when he misses it. There is nobody in the commonwealth of learning, who does not profess himself a lover of truth; and there is not a rational creature that would not take it amiss to be thought otherwise of; and yet for all this, one may truly say, there are very few lovers of truth for truth-sake, even amongst those who persuade themselves that they are so. How a man may know whether he be so in earnest, is worth inquiry; and I think there is this one unerring mark of it, *viz.* the not entertaining any proposition with greater assurance, than the proofs it is built upon will warrant. Whoever goes beyond this measure of assent, it is plain receives not truth in the love of it, loves not truth for truth-sake, but for some other by-end; for the evidence that any proposition is true (except such as are self-evident) lying only in the proofs a man has of it, whatsoever degrees of assent he affords it beyond the degrees of that evidence, it is plain all that surplusage of assurance is owing to some other affection, and not to the love of truth; it being as impossible that the love of truth should carry my assent above the evidence that there is to me that it is true, as that the love of truth should make me assent to any proposition for the sake of that evidence which it has not that it is true; which is in effect to love it as a truth, because it is possible or probable that it may not be true. In any truth that gets not possession of our minds by the irresistible light of self-evidence, or by the force of demonstration, the arguments that gain it assent are the vouchers and gauge of its probability to us; and we can receive it for no other, than such as they deliver it to our understandings. Whatsoever credit or authority we give to any

propoſition, more than it receives from the principles and proofs it ſupports itſelf upon, is owing to our inclinations that way, and is ſo far a derogation from the love of truth, as ſuch; which, as it can receive no evidence from our paſſions or intereſts, ſo it ſhould receive no tincture from them.

§ 2. *A Forwardneſs to dictate, from whence.*

THE aſſuming an authority of dictating to others, and a forwardneſs to preſcribe to their opinions, is a conſtant concomitant of this bias and corruption of our judgments. For how almoſt can it be otherwiſe, but that he ſhould be ready to impoſe on others belief, who has already impoſed on his own? Who can reaſonably expect arguments and conviction from him, in dealing with others, whoſe underſtanding is not accuſtomed to them in his dealing with himſelf, who does violence to his own faculties, tyrannizes over his own mind, and uſurps the prerogative that belongs to truth alone, which is to command aſſent by only its own authority, *i. e.* by and in proportion to that evidence which it carries with it?

§ 3. *Force of Enthuſiaſm.*

UPON this occaſion I ſhall take the liberty to conſider a third ground of aſſent, which with ſome men has the ſame authority, and is as confidently relied on as either *faith* or *reaſon*; I mean *enthuſiaſm*, which, laying by reaſon, would ſet up revelation without it; whereby in effect it takes away both reaſon and revelation, and ſubſtitutes in the room of it the ungrounded fancies of a man's own brain, and aſſumes them for a foundation both of opinion and conduct.

§ 4. *Reaſon and Revelation.*

REASON is natural *revelation*, whereby the eternal Father of light, and Fountain of all knowledge, communicates to mankind that portion of truth which he has laid within the reach of their natural faculties: *Revelation* is natural *reaſon* enlarged by a new ſet of diſcoveries communicated by GOD immediately, which *reaſon* vouches the truth of, by the teſtimony and proofs it gives that they come from GOD. So that he that takes away *reaſon*,

to make way for *revelation*, puts out the light of both, and does much-what the same, as if he would persuade a man to put out his eyes, the better to receive the remote light of an invisible star by a telescope.

§ 5. *Rise of Enthusiasm.*

IMMEDIATE *revelation* being a much easier way for men to establish their opinions, and regulate their conduct, than the tedious and not always successful labour of strict reasoning, it is no wonder that some have been very apt to pretend to revelation, and to persuade themselves that they are under the peculiar guidance of Heaven in their actions and opinions, especially in those of them which they cannot account for by the ordinary methods of knowledge, and principles of reason. Hence we see, that in all ages, men, in whom melancholy has mixed with devotion, or whose conceit of themselves has raised them into an opinion of a greater familiarity with GOD, and a nearer admittance to his favour than is afforded to others, have often flattered themselves with a persuasion of an immediate intercouse with the Deity, and frequent communications from the Divine Spirit. GOD, I own, cannot be denied to be able to enlighten the understanding by a ray darted into the mind immediately from the Fountain of light: This they understand he has promised to do; and who then has so good a title to expect it as those who are his peculiar people, chosen by him, and depending on him?

§ 6. *Enthusiasm.*

THEIR minds being thus prepared, whatever groundless opinion comes to settle itself strongly upon their fancies, is an illumination from the spirit of GOD, and presently of divine authority; and whatsoever odd action they find in themselves a strong inclination to do, that impulse is concluded to be a call or direction from Heaven, and must be obeyed; it is a commission from above, and they cannot err in executing it.

§ 7.

THIS I take to be properly enthusiasm, which, though founded neither on reason nor divine revelation, but rising from the conceits of a warmed or overweening brain,

works yet, where it once gets footing, more powerfully on the persuasions and actions of men, than either of those two, or both together; men being most forwardly obedient to the impulses they receive from themselves, and the whole man is sure to act more vigorously, where the whole man is carried by a natural motion; for strong conceit, like a new principle, carries all easily with it, when got above common sense; and freed from all restraint of reason, and check of reflection, it is heightened into a divine authority, in concurrence with our own temper and inclination.

§ 8. *Enthusiasm mistaken for seeing and feeling.* THOUGH the odd opinions and extravagant actions *enthusiasm* has run men into, were enough to warn them against this wrong principle, so apt to misguide them both in their belief and conduct; yet the love of something extraordinary, the ease and glory it is to be inspired, and be above the common and natural ways of knowledge, so flatters many mens laziness, ignorance and vanity, that when once they are got into this way of immediate revelation, of illumination without search, and of certainty without proof and without examination, it is a hard matter to get them out of it. Reason is lost upon them, they are above it; they see the light infused into their understandings, and cannot be mistaken; it is clear and visible there, like the light of bright sunshine, shows itself, and needs no other proof but its own evidence; they feel the hand of GOD moving them within, and the impulses of the Spirit, and cannot be mistaken in what they feel: Thus they support themselves, and are sure reason hath nothing to do with what they see and feel in themselves; what they have a sensible experience of, admits no doubt, needs no probation. Would he not be ridiculous, who should require to have it proved to him that the light shines, and that he sees it? It is its own proof, and can have no other. When the Spirit brings light into our minds, it dispels darkness; we see it, as we do that of the sun at noon, and need not the twilight of reason to show it us. This light from Heaven is strong, clear, and pure, carries its own

demonſtration with it; and we may as rationally take a glow-worm to aſſiſt us to diſcover the ſun, as to examine the celeſtial ray by our dim candle, reaſon.

§ 9.

THIS is the way of talking of theſe men; they are ſure becauſe they are ſure, and their perſuaſions are right only becauſe they are ſtrong in them; for when what they ſay is ſtripped of the metaphor of ſeeing and feeling, this is all it amounts to, and yet theſe ſimiles ſo impoſe on them, that they ſerve them for certainty in themſelves, and demonſtration to others.

§ 10. *Enthuſiaſm, how to be diſcovered.*

BUT to examine a little ſoberly this internal light, and this feeling on which they build ſo much; theſe men have, they ſay, clear light, and they ſee; they have an awakened ſenſe, and they feel; this cannot, they are ſure, be diſputed them; for when a man ſays he ſees or he feels, nobody can deny it him that he does ſo. But here let me aſk, This ſeeing, is it the perception of the truth of the propoſition, or of this, that it is a revelation from GOD? This feeling, is it a perception of an inclination or fancy to do ſomething, or of the ſpirit of GOD moving that inclination? Theſe are two very different perceptions, and muſt be carefully diſtinguiſhed, if we would not impoſe upon ourſelves. I may perceive the truth of a propoſition, and yet not perceive that it is an immediate revelation from GOD; I may perceive the truth of a propoſition in *Euclid*, without its being, or my perceiving it to be a revelation; nay, I may perceive I came not by this knowledge in a natural way, and ſo may conclude it revealed, without perceiving that it is a revelation from GOD; becauſe there be ſpirits, which, without being divinely commiſſioned, may excite thoſe *ideas* in me, and lay them in ſuch order before my mind, that I may perceive their connection; ſo that the knowledge of any propoſition coming into my mind I know not how, is not a perception that it is from GOD, much leſs is a ſtrong perſuaſion that it is true, a perception that it is from GOD, or ſo much as true; but however it be called light and ſeeing, I

suppose it is at most but belief and assurance; and the proposition taken for a revelation, is not such as they know to be true, but take to be true; for where a proposition is known to be true, revelation is needless; and it is hard to conceive how there can be a revelation to any one of what he knows already. If, therefore, it be a proposition which they are persuaded, but do not know to be true, whatever they may call it, it is not seeing, but believing; for these are two ways, whereby truth comes into the mind wholly distinct, so that one is not the other. What I see, I know to be so by the evidence of the thing itself; what I believe, I take to be so upon the testimony of another: But this testimony I must know to be given, or else what ground have I of believing? I must see that it is GOD that reveals this to me, or else I see nothing. The question then here is, how do I know that GOD is the revealer of this to me; that this impression is made upon my mind by his holy Spirit, and that therefore I ought to obey it? If I know not this, how great soever the assurance is that I am possessed with, it is groundless; whatever light I pretend to, it is but *enthusiasm*; for whether the proposition supposed to be revealed, be in itself evidently true or visibly probable, or by the natural ways of knowledge uncertain, the proposition that must be well grounded, and manifested to be true, is this, that GOD is the revealer of it, and that what I take to be a revelation is certainly put into my mind by him, and is not an illusion dropped in by some other spirit, or raised by my own fancy; for if I mistake not, these men receive it for true, because they presume GOD revealed it. Does it not then stand them upon, to examine on what grounds they presume it to be a revelation from GOD? or else all their confidence is mere presumption, and this light they are so dazzled with is nothing but an *ignis fatuus* that leads them continually round in this circle; *it is a revelation, because they firmly believe it*; and *they believe it, because it is a revelation.*

§ 11. *Enthusiasm fails of Evidence, that the Proposition is from GOD.*

In all that is of divine *revelation*, there is need of no other proof but that it is an inspiration from GOD; for he can neither deceive, nor be deceived. But how shall it be known that any proposition in our minds is a truth infused by GOD; a truth that is revealed to us by him, which he declares to us, and therefore we ought to believe? Here it is that *enthusiasm* fails of the evidence it pretends to; for men thus possessed boast of a light, whereby they say they are enlightened, and brought into the knowledge of this or that truth. But if they know it to be a truth, they must know it to be so, either by its own self-evidence to natural reason, or by the rational proofs that make it out to be so. If they see and know it to be a truth, either of these two ways, they in vain suppose it to be a revelation; for they know it to be true by the same way that any other man naturally may know that it is so without the help of revelation; for thus all the truths, of what kind soever, that men uninspired are enlightened with, came into their minds, and are established there. If they say they know it to be true, because it is a revelation from GOD, the reason is good; but then it will be demanded how they know it to be a revelation from GOD? If they say, by the light it brings with it, which shines bright in their minds, and they cannot resist; I beseech them to consider, whether this be any more than what we have taken notice of already, *viz.* that it is a revelation, because they strongly believe it to be true; for all the light they speak of is but a strong, though ungrounded, persuasion of their own minds, that it is a truth; for rational grounds from proofs that it is a truth, they must acknowledge to have none; for then it is not received as a revelation, but upon the ordinary grounds that other truths are received; and if they believe it to be true because it is a revelation, and have no other reason for its being a revelation but because they are fully persuaded without any other reason that it is true, they believe it to be a revelation only because they strongly believe it to be a revelation;

which is a very unsafe ground to proceed on, either in our tenets or actions. And what readier way can there be to run ourselves into the most extravagant errors and miscarriages, than thus to set up fancy for our supreme and sole guide, and to believe any proposition to be true, any action to be right, only because we believe it to be so? The strength of our persuasions are no evidence at all of their own rectitude: crooked things may be as stiff and unflexible as straight; and men may be as positive and peremptory in error as in truth. How come else the untractable zealots in different and opposite parties? For if the light, which every one thinks he has in his mind, which in this case is nothing but the strength of his own persuasion, be an evidence that it is from GOD, contrary opinions may have the same title to be inspirations; and GOD will be not only the father of lights, but of opposite and contradictory lights, leading men contrary ways; and contradictory propositions will be divine truths, if an ungrounded strength of assurance be an evidence that any proposition is a divine revelation.

§ 12. *Firmness of Persuasion no Proof that any Proposition is from GOD.*

This cannot be otherwise, whilst firmness of persuasion is made the cause of believing, and confidence of being in the right is made an argument of truth. St. Paul himself believed he did well, and that he had a call to it, when he persecuted the Christians, whom he confidently thought in the wrong: but yet it was he, and not they, who were mistaken. Good men are men still, liable to mistakes, and are sometimes warmly engaged in errors, which they take for divine truths, shining in their minds with the clearest light.

§ 13. *Light in the Mind, what.*

Light, true light in the mind is, or can be nothing else but the evidence of the truth of any proposition; and if it be not a self-evident proposition, all the light it has, or can have, is from the clearness and validity of those proofs, upon which it is received. To talk of any other light in the understanding, is to put ourselves in the dark, or in the power of the Prince of Dark-

ness, and by our own consent to give ourselves up to delusion to believe a lie; for if strength of persuasion be the light which must guide us, I ask how shall any one distinguish between the delusions of Satan, and the inspiration of the Holy Ghost? He can transform himself into an angel of light; and they who are led by this son of the morning, are as fully satisfied of the illumination, *i. e.* are as strongly persuaded that they are enlightened by the spirit of God, as any one who is so; they acquiesce and rejoice in it, are acted by it; and nobody can be more sure, nor more in the right (if their own strong belief may be judge) than they.

§ 14. *Revelation must be judged of by Reason.* He, therefore, that will not give himself up to all the extravagancies of delusion and error, must bring this guide of his light within to the trial. GOD, when he makes the prophet, does not unmake the man: He leaves all his faculties in their natural state, to enable him to judge of his inspirations, whether they be of divine original or no. When he illuminates the mind with supernatural light, he does not extinguish that which is natural. If he would have us assent to the truth of any proposition, he either evidences that truth by the usual methods of natural reason, or else makes it known to be a truth which he would have us assent to by his authority, and convinces us that it is from him by some marks which reason cannot be mistaken in. *Reason* must be our last judge and guide in every thing. I do not mean that we must consult reason, and examine whether a proposition revealed from GOD can be made out by natural principles, and if it cannot, that then we may reject it; but consult it we must, and by it examine whether it be a revelation from GOD or no; and if *reason* finds it to be revealed from GOD, *reason* then declares for it as much as for any other truth, and makes it one of her dictates. Every conceit that thoroughly warms our fancies must pass for an inspiration, if there be nothing but the strength of our persuasions whereby to judge of our persuasions. If *reason* must not examine their truth by something extrinsical to the persuasions themselves, in-

ſpirations and deluſions, truth and falſehood, will have the ſame meaſure, and will not be poſſible to be diſtinguiſhed.

§ 15. *Belief no Proof of Revelation.*

If this internal light, or any propoſition which under that title we take for inſpired, be conformable to the principles of reaſon, or to the word of GOD, which is atteſted revelation, *reaſon* warrants it, and we may ſafely receive it for true, and be guided by it in our belief and actions; if it receive no teſtimony nor evidence from either of theſe rules, we cannot take it for a revelation, or ſo much as for true, till we have ſome other mark that it is a revelation, beſides our believing that it is ſo. Thus we ſee the holy men of old, who had revelations from GOD, had ſomething elſe beſides that internal light of aſſurance in their own minds, to teſtify to them that it was from GOD. They were not left to their own perſuaſions alone, that thoſe perſuaſions were from GOD, but had outward ſigns to convince them of the Author of thoſe revelations; and when they were to convince others, they had a power given them to juſtify the truth of their commiſſion from Heaven, and by viſible ſigns to aſſert the divine authority of a meſſage they were ſent with. *Moſes* ſaw the buſh burn without being conſumed, and heard a voice out of it; this was ſomething beſides finding an impulſe upon his mind to go to *Pharaoh*, that he might bring his brethren out of *Egypt*, and yet he thought not this enough to authoriſe him to go with that meſſage, till GOD, by another miracle of his rod turned into a ſerpent, had aſſured him of a power to teſtify his miſſion, by the ſame miracle repeated before them whom he was ſent to. *Gideon* was ſent by an angel to deliver *Iſrael* from the *Midianites*, and yet he deſired a ſign to convince him that this commiſſion was from GOD. Theſe, and ſeveral the like inſtances to be found among the prophets of old, are enough to ſhow that they thought not an inward ſeeing or perſuaſion of their own minds, without any other proof, a ſufficient evidence that it was from GOD, though the Scripture

does not every where mention their demanding or having ſuch proofs.

§ 16.

In what I have ſaid, I am far from denying that GOD can, or doth ſometimes enlighten mens minds in the apprehending of certain truths, or excite them to good actions by the immediate influence and aſſiſtance of the Holy Spirit, without any extraordinary ſigns accompanying it; but in ſuch caſes too we have reaſon and the ſcripture unerring rules to know whether it be from GOD or no. Where the truth embraced is conſonant to the revelation in the written word of GOD, or the action conformable to dictates of right *reaſon* or holy writ, we may be aſſured that we run no riſk in entertaining it as ſuch; becauſe though perhaps it be not an immediate revelation from GOD, extraordinarily operating on our minds, yet we are ſure it is warranted by that revelation which he has given us of truth. But it is not the ſtrength of our private perſuaſion within ourſelves, that can warrant it to be a light or motion from Heaven; nothing can do that but the written word of GOD without us, or that ſtandard of reaſon which is common to us with all men. Where reaſon or ſcripture is expreſs for any opinion or action, we may receive it as of divine authority; but it is not the ſtrength of our own perſuaſions which can by itſelf give it that ſtamp. The bent of our own minds may favour it as much as we pleaſe, that may ſhow it to be a fondling of our own, but will by no means prove it to be an offſpring of Heaven, and of divine original.

CHAP. XX.

OF WRONG ASSENT, OR ERROR.

§ 1. *Cauſes of Error.*

KNOWLEDGE being to be had only of viſible certain truth, *error* is not a fault of our knowledge, but a miſtake of our judgment, giving aſſent to that which is not true.

But if assent be grounded on likelihood, if the proper object and motive of our assent be probability, and that probability consists in what is laid down in the foregoing chapters, it will be demanded, how men come to give their assents contrary to probability; for there is nothing more common than contrariety of opinions; nothing more obvious than that one man wholly disbelieves what another only doubts of, and a third stedfastly believes and firmly adheres to. The reasons whereof, though they may be very various, yet I suppose may be all reduced to these four:

1. *Want of proofs.*
2. *Want of ability to use them.*
3. *Want of will to use them.*
4. *Wrong measures of probability.*

§ 2. 1. *Want of Proofs.*

First, By *want of proofs*, I do not mean only the want of those proofs which are no where extant, and so are no where to be had; but the want even of those proofs which are in being, or might be procured. And thus men want proofs who have not the convenience or opportunity to make experiments and observations themselves tending to the proof of any proposition; nor likewise the convenience to inquire into, and collect the testimonies of others; and in this state are the greatest part of mankind, who are given up to labour, and enslaved to the necessity of their mean condition, whose lives are worn out only in the provisions for living. These mens opportunity of knowledge and inquiry are commonly as narrow as their fortunes; and their understandings are but little instructed, when all their whole time and pains is laid out to still the croaking of their own bellies, or the cries of their children. It is not to be expected that a man who drudges on all his life in a laborious trade, should be more knowing in the variety of things done in the world, than a pack-horse, who is driven constantly forwards and backwards in a narrow lane and dirty road only to market, should be skilled in the geography of the country. Nor is it at all more possible that he who wants leisure, books, and languages, and the opportunity of conversing

with a variety of men, should be in a condition to collect those testimonies and observations which are in being, and are necessary to make out many, nay, most of the propositions that, in the societies of men, are judged of the greatest moment; or to find out grounds of assurance so great as the belief of the points he would build on them is thought necessary; so that a great part of mankind are, by the natural and unalterable state of things in this world, and the constitution of human affairs, unavoidably given over to invincible ignorance of those proofs on which others build, and which are necessary to establish those opinions; the greatest part of men, having much to do to get the means of living, are not in a condition to look after those of learned and laborious inquiries.

§ 3. Ob. *What shall become of those who want them, answered.*

What shall we say then? Are the greatest part of mankind, by the necessity of their condition, subjected to unavoidable ignorance in those things which are of greatest importance to them? (for of these it is obvious to inquire.) Have the bulk of mankind no other guide but accident, and blind chance, to conduct them to their happiness or misery? Are the current opinions, and licensed guides of every country, sufficient evidence and security to every man to venture his greatest concernments on, nay, his everlasting happiness or misery? Or, can those be the certain and infallible oracles and standards of truth, which teach one thing in *Christendom*, and another in *Turkey?* Or, shall a poor countryman be eternally happy for having the chance to be born in *Italy*; or a day-labourer be unavoidably lost, because he had the ill luck to be born in *England?* How ready some men may be to say some of these things, I will not here examine; but this I am sure, that men must allow one or other of these to be true (let them choose which they please), or else grant, that God has furnished men with faculties sufficient to direct them in the way they should take, if they will but seriously employ them that way, when their ordinary vocations allow them the leisure.

No man is so wholly taken up with the attendance on the means of living, as to have no spare time at all to think of his soul, and inform himself in matters of religion. Were men as intent upon this as they are on things of lower concernment, there are none so enslaved to the necessities of life, who might not find many vacancies that might be husbanded to this advantage of their knowledge.

§ 4. *People hindered from Inquiry.*

Besides those whose improvements and informations are straitened by the narrowness of their fortunes, there are others whose largeness of fortune would plentifully enough supply books and other requisites for clearing of doubts, and discovering of truth; but they are *cooped in* close *by the laws* of their countries, and the strict guards of those whose interest it is to keep them ignorant, lest, knowing more, they should believe the less in them. These are as far, nay, farther *from the liberty and opportunities of a fair inquiry*, than those poor and wretched labourers we before spoke of; and, however they may seem high and great, are confined to narrowness of thought, and enslaved in that which should be the freest part of man, their understandings. This is generally the case of all those who live in places where care is taken to propagate truth without knowledge; where men are forced, at a venture, to be of the religion of the country, and must therefore swallow down opinions, as silly people do empirics pills, without knowing what they are made of, or how they will work, and have nothing to do but believe that they will do the cure; but in this are much more miserable than they, in that they are not at liberty to refuse swallowing what perhaps they had rather let alone, or to choose the physician to whose conduct they would trust themselves.

§ 5. 2. *Want of Skill to use them.*

Secondly, Those who *want skill to use those evidences they have* of probabilities, who cannot carry a train of consequences in their heads, nor weigh exactly the preponderancy of contrary proofs and testimonies, making every circumstance its due allowance, may be easily

misled to assent to propositions that are not probable. There are some men of one, some but of two syllogisms, and no more, and others that can but advance one step farther. These cannot always discern that side on which the strongest proofs lie, cannot constantly follow that which in itself is the more probable opinion. Now that there is such a difference between men, in respect of their understandings, I think nobody who has had any conversation with his neighbours will question, though he never was at *Westminster-hall*, or the *Exchange*, on the one hand, nor at *Alms-houses*, or *Bedlam*, on the other. Which great difference in mens intellectuals, whether it rises from any defect in the organs of the body, particularly adapted to thinking, or in the dullness or untractableness of those faculties for want of use, or, as some think, in the natural differences of mens souls themselves, or some or all of these together, it matters not here to examine; only this is evident, that there is a difference of degrees in mens understandings, apprehensions, and reasonings, to so great a latitude, that one may, without doing injury to mankind, affirm, that there is a greater distance between some men and others, in this respect, than between some men and some beasts. But how this comes about is a speculation, though of great consequence, yet not necessary to our present purpose.

§ 6. 3. *Want of Will to use them.*

Thirdly, There are another sort of people that *want proofs*, not because they are out of their reach, but *because they will not use them*; who, though they have riches and leisure enough, and want neither parts nor other helps, are yet never the better for them. Their hot pursuit of pleasure, or constant drudgery in business, engages some mens thoughts elsewhere: Laziness and oscitany in general, or a particular aversion for books, study, and meditation, keep others from any serious thoughts at all; and some out of fear that an impartial inquiry would not favour those opinions which best suit their prejudices, lives, and designs, content themselves without examination to take upon trust what they find

convenient and in fashion. Thus most men, even of those that might do otherwise, pass their lives without an acquaintance with, much less a rational assent to probabilities they are concerned to know, though they lie so much within their view, that to be convinced of them they need but turn their eyes that way. But we know some men will not read a letter which is supposed to bring ill news; and many men forbear to cast up their accounts, or so much as think upon their estates, who have reason to fear their affairs are in no very good posture. How men, whose plentiful fortunes allow them leisure to improve their understandings, can satisfy themselves with a lazy ignorance, I cannot tell: But methinks they have a low opinion of their souls, who lay out all their incomes in provisions for the body, and employ none of it to procure the means and helps of knowledge; who take great care to appear always in a neat and splendid outside, and would think themselves miserable in coarse clothes, or a patched coat, and yet contentedly suffer their minds to appear abroad in a pie-bald livery of coarse patches, and borrowed shreds, such as it has pleased chance, or their country tailor (I mean the common opinion of those they have conversed with), to clothe them in. I will not here mention how unreasonable this is for men that ever think of a future state, and their concernment in it, which no rational man can avoid to do sometimes; nor shall I take notice what a shame and confusion it is, to the greatest contemners of knowledge, to be found ignorant in things they are concerned to know. But this at least is worth the consideration of those who call themselves gentlemen, that however they may think credit, respect, power, and authority, the concomitants of their birth and fortune, yet they will find all these still carried away from them, by men of lower condition who surpass them in knowledge. They who are blind will always be led by those that see, or else fall into the ditch; and he is certainly the most subjected, the most enslaved, who is so in his understanding. In the foregoing instances, some of the causes have been shown of wrong assent, and how it

comes to pass, that probable doctrines are not always received with an assent proportionable to the reasons which are to be had for their probability; but hitherto we have considered only such probabilities whose proofs do exist, but do not appear to him that embraces the error.

§ 7. 4. *Wrong Measures of Probability, whereof.* *FOURTHLY*, There remains yet the last sort, who, even where the real probabilities appear, and are plainly laid before them, do not admit of the conviction, nor yield unto manifest reasons, but do either ἐπέχειν, suspend their assent, or give it to the less probable opinion: And to this danger are those exposed, who have taken up *wrong measures of probability*; which are,

1. *Propositions that are not in themselves certain and evident, but doubtful and false, taken up for Principles.*
2. *Received Hypotheses.*
3. *Predominant Passions or Inclinations.*
4. *Authority.*

§ 8. 1. *Doubtful Propositions taken for Principles.* *FIRST*, The first and firmest ground of probability, is the conformity any thing has to our own knowledge; especially that part of our knowledge which we have embraced, and continue to look on as *principles*. These have so great an influence upon our opinions, that it is usually by them we judge of truth, and measure probability to that degree, that what is inconsistent with our *principles*, is so far from passing for probable with us, that it will not be allowed possible. The reverence borne to these *principles* is so great, and their authority so paramount to all other, that the testimony not only of other men, but the evidence of our own senses are often rejected, when they offer to vouch any thing contrary to these established rules. How much the doctrine of innate *principles*, and that *principles* are not to be proved or questioned, has contributed to this, I will not here examine. This I readily grant, that one truth cannot contradict another; but withal I take leave also to say, that every one ought very carefully to beware what he admits for a *principle*, to examine it strictly, and see

whether he certainly knows it to be true of itself by its own evidence, or whether he does only with assurance believe it to be so upon the authority of others; for he hath a strong bias put into his understanding, which will unavoidably misguide his assent, who hath imbibed *wrong principles*, and has blindly given himself up to the authority of any opinion in itself not evidently true.

§ 9.

THERE is nothing more ordinary, than that children should receive into their minds propositions (especially about matters of religion) from their parents, nurses, or those about them, which being insinuated into their unwary as well as unbiassed understandings, and fastened by degrees, are at last (equally, whether true or false) rivetted there by long custom and education, beyond all possibility of being pulled out again; for men, when they are grown up, reflecting upon their opinions, and finding those of this sort to be as ancient in their minds as their very memories, not having observed their early insinuation, nor by what means they got them, they are apt to reverence them as sacred things, and not to suffer them to be profaned, touched, or questioned: They look on them as the *Urim* and *Thummim* set up in their minds immediately by GOD himself, to be the great and unerring deciders of truth and falsehood, and the judges to which they are to appeal in all manner of controversies.

§ 10.

THIS opinion of his *principles* (let them be what they will) being *once established in any one's mind*, it is easy to be imagined what reception any proposition shall find, how clearly soever proved, that shall invalidate their authority, or at all thwart with these internal oracles; whereas the grossest absurdities and improbabilities, being but agreeable to such principles, go down glibly, and are easily digested. The great obstinacy that is to be found in men firmly believing quite contrary opinions, though many times equally absurd, in the various religions of mankind, are as evident a proof as they are an unavoidable consequence of this way of reasoning

from received traditional principles; so that men will disbelieve their own eyes, renounce the evidence of their senses, and give their own experience the lie, rather than admit of any thing disagreeing with these sacred tenets. Take an intelligent *Romanist*, that from the very first dawning of any notions in his understanding, hath had this principle constantly inculcated, *viz.* that he must believe as the church (*i. e.* those of his communion) believes, or that the Pope is infallible; and this he never so much as heard questioned, till at forty or fifty years old he met with one of other principles; how is he prepared easily to swallow, not only against all probability, but even the clear evidence of his senses, the doctrine of *transubstantiation?* This principle has such an influence on his mind, that he will believe that to be flesh which he sees to be bread. And what way will you take to convince a man of any improbable opinion he holds, who, with some philosphers, hath laid down this as a foundation of reasoning, that he must believe his reason (for so men improperly call arguments drawn from their principles) against his senses? Let an *enthusiast* be principled, that he or his teacher is inspired, and acted by an immediate communication of the Divine Spirit, and you in vain bring the evidence of clear reasons against his doctrine. Whoever, therefore, have imbibed wrong *principles*, are not, in things inconsistent with these principles, to be moved by the most apparent and convincing probabilities, till they are so candid and ingenuous to themselves, as to be persuaded to examine even those very *principles*, which many never suffer themselves to do.

§ 11. 2. *Received Hypotheses.*

Secondly, Next to these are men whose understandings are cast into a mould, and fashioned just to the size of a *received hypotheses*. The difference between these and the former is, that they will admit of matter of fact, and agree with dissenters in that, but differ only in assigning of reasons, and explaining the manner of operation. These are not at that open defiance with their senses as the former; they can endure to hearken

to their information a little more patiently; but will by no means admit of their reports in the explanation of things, nor be prevailed on by probabilities, which would convince them that things are not brought about just after the same manner that they have decreed within themselves that they are. Would it not be an insufferable thing for a learned professor, and that which his scarlet would blush at, to have his authority of forty years standing, wrought out of hard rock, *Greek* and *Latin*, with no small expence of time and candle, and confirmed by general tradition and a reverend beard, in an instant overturned by an upstart novelist? Can any one expect that he should be made to confess, that what he taught his scholars thirty years ago was all error and mistake, and that he sold them hard words and ignorance at a very dear rate? What probabilities, I say, are sufficient to prevail in such a case? And who ever by the most cogent arguments will be prevailed with to disrobe himself at once of all his old opinions, and pretences to knowledge and learning, which with hard study he hath all his time been labouring for; and turn himself out stark naked, in quest a-fresh of new notions? All the arguments can be used will be as little able to prevail, as the wind did with the traveller to part with his cloak, which he held only the faster. To this of wrong hypothesis, may be reduced the errors that may be occasioned by a true hypothesis, or right principles, but not rightly understood. There is nothing more familiar than this. The instances of men contending for different opinions, which they all derive from the infallible truth of the Scripture, are an undeniable proof of it. All that call themselves Christians, allow the text, that says Μετανοεῖτε, to carry in it the obligation to a very weighty duty; but yet however erroneous will one of their practices be, who understanding nothing but the *French*, take this rule with one translation to be *repentez vous*, repent; or with the other *faitiez penitence*, do penance.

§ 12. 3. *Predominant Passions.*

Thirdly, Probabilities which cross mens appetites and

prevailing passions, run the same fate. Let never so much probability hang on one side of a covetous man's reasoning, and money on the other, it is easy to foresee which will outweigh. Earthly minds, like mud-walls, resist the strongest batteries, and though perhaps sometimes the force of a clear argument may make some impression, yet they nevertheless stand firm, keep out the enemy, truth, that would captivate or disturb them. Tell a man passionately in love, that he is jilted; bring a score of witnesses of the falsehood of his mistress, it is ten to one but three kind words of hers shall invalidate all their testimonies. *Quod volumus, facile credimus; what suits our wishes, is forwardly believed*; is, I suppose, what every one hath more than once experimented; and though men cannot always openly gainsay or resist the force of manifest probabilities that make against them, yet yield they not to the argument. Not but that it is the nature of the understanding constantly to close with the more probable side; but yet a man hath a power to suspend and restrain its inquiries, and not permit a full and satisfactory examination, as far as the matter in question is capable, and will bear it to be made. Until that be done, there will be always these *two ways left of evading the most apparent probabilities.*

§ 13. *The means of evading Probabilities; 1. Supposed Fallacy.*

First, That the arguments being (as for the most part they are) brought in words, *there may be a fallacy latent* in them; and the consequences being, perhaps, many in train, they may be some of them incoherent. There are very few discourses so short, clear, and consistent, to which most men may not, with satisfaction enough to themselves, raise this doubt, and from whose *conviction* they may not, without reproach of disingenuity or unreasonableness, set themselves free with the old reply, *Non persuadebis, etiamsi persuaseris; though I cannot answer, I will not yield.*

§ 14. 2. *Supposed Arguments for the contrary.*

Secondly, Manifest probabilities may be evaded, and the assent withheld, upon this suggestion, that *I know*

not yet all that may be said on the contrary side; and therefore though I be beaten, it is not necessary I should yield, not knowing what forces there are in reserve behind. This is a refuge against *conviction* so open and so wide, that it is hard to determine when a man is quite out of the verge of it.

§ 15. *What Probabilities determine the Assent.* But yet there is some end of it; and a man having carefully inquired into all the grounds of probability and unlikeliness, done his utmost to inform himself in all particulars fairly, and cast up the sum total on both sides, may in most cases come to acknowledge, upon the whole matter, on which side the probability rests; wherein some proofs in matter of reason, being suppositions upon universal experience, are so cogent and clear, and some testimonies in matter of fact so universal, that he cannot refuse his assent: So that I think we may conclude, that in propositions, where though the proofs in view are of most moment, yet there are sufficient grounds to suspect that there is either fallacy in words, or certain proofs as considerable to be produced on the contrary side, there assent, suspense, or dissent, are often voluntary actions; but *where* the proofs are such as make it highly probable, and there is not sufficient ground to suspect that there is either fallacy of words (which sober and serious consideration may discover), nor equally valid proofs, yet undiscovered, latent on the other side (which also the nature of the thing may, in some cases, make plain to a considerate man), there, I think, a *man* who has weighed them, *can scarce refuse his assent* to the side on which the greater probability appears. Whether it be probable, that a promiscuous jumble of printing letters should often fall into a method and order, which should stamp on paper a coherent discourse; or that a blind fortuitous concourse of atoms, not guided by an understanding agent, should frequently constitute the bodies of any species of animals; in these and the like cases, I think nobody that considers them can be one jot at a stand which side to take, nor at all waver in his assent. Lastly, When

there can be no supposition (the thing in its own nature indifferent, and wholly depending upon the testimony of witnesses) that there is as fair testimony against as for the matter of fact attested, which by inquiry is to be learned, *v. g.* whether there was 1700 years ago such a man at *Rome* as *Julius Cæsar*; in all such cases, I say, I think it is not in any rational man's power to refuse his assent, but that it necessarily follows, and closes with such probabilities. In other less clear cases, I think it is in a man's power to suspend his assent, and perhaps content himself with the proofs he has, if they favour the opinion that suits with his inclination or interest, and so stop from farther search; but that a man should afford his assent to that side on which the less probability appears to him, seems to me utterly impracticable, and as impossible as it is to believe the same thing probable and improbable at the same time.

§ 16. *Where it is in our power to suspend it.* As knowledge is no more arbitrary than perception, so, I think, assent is no more in our power than knowledge. When the agreement of any two *ideas* appears to our minds, whether immediately, or by the assistance of reason, I can no more refuse to perceive, no more avoid knowing it, than I can avoid seeing those objects which I turn my eyes to, and look on in day-light; and what upon full examination I find the most probable, I cannot deny my assent to. But though we cannot hinder our knowledge, where the agreement is once perceived, nor our assent, where the probability manifestly appears upon due consideration of all the measures of it, yet *we can hinder both knowledge and assent, by stopping our inquiry*, and not employing our faculties in the search of any truth. If it were not so, ignorance, error, or infidelity, could not in any case be a fault. Thus in some cases we can prevent or suspend our assent; but can a man, versed in modern or ancient history, doubt whether there be such a place as *Rome*, or whether there was such a man as *Julius Cæsar?* Indeed there are millions of truths that a man is not or may not think himself concerned to know; as, whether our King *Richard*

the Third was crook-backed or no, or whether *Roger Bacon* was a mathematician or a magician. In these and such like cases, where the assent one way or other is of no importance to the interest of any one, no action, no concernment of his following or depending thereon, there it is not strange that the mind should give itself up to the common opinion, or render itself to the first comer. These and the like opinions are of so little weight and moment, that, like motes in the sun, their tendencies are very rarely taken notice of; they are there as it were by chance, and the mind lets them float at liberty; but where the mind judges that the proposition has concernment in it, where the assent or not assenting is thought to draw consequences of moment after it, and good or evil to depend on choosing or refusing the right side, and the mind sets itself seriously to inquire and examine the probability; there, I think, it is not in our choice to take which side we please, if manifest odds appear on either. The greater probability, I think, in that case will determine the assent; and a man can no more avoid assenting or taking it to be true, where he perceives the greater probability, than he can avoid knowing it to be true, where he perceives the agreement or disagreement of any two *ideas*.

If this be so, the foundation of error will lie in wrong measures of probability; as the foundation of vice in wrong measures of good.

§ 17. 4. *Authority.*

Fourthly, The fourth and last *wrong measure of probability* I shall take notice of, and which keeps in ignorance or error more people than all the other together, is that which I have mentioned in the foregoing chapter; I mean, the *giving up our assent to the common received opinions*, either of our friends or party, neighbourhood or country. How many men have no other ground for their tenets, than the supposed honesty, or learning, or number of those of the same profession? as if honest or bookish men could not err, or truth were to be established by the vote of the multitude: yet this with most men serves the turn. The tenet has had the attestation

of reverend antiquity, it comes to me with the passport of former ages, and therefore I am secure in the reception I give it; other men have been, and are of the same opinion (for that is all is said), and therefore it is reasonable for me to embrace it. A man may more justifiably throw up cross and pile for his opinions, than take them up by such measures. All men are liable to error, and most men are in many points, by passion or interest, under temptation to it. If we could but see the secret motives that influenced the men of name and learning in the world, and the leaders of parties, we should not always find that it was the embracing of truth for its own sake, that made them espouse the doctrines they owned and maintained. This at least is certain, there is not an opinion so absurd, which a man may not receive upon this ground; there is no error to be named, which has not had its professors; and a man shall never want crooked paths to walk in, if he thinks that he is in the right way, wherever he has the footsteps of others to follow.

§ 18. *Men not in so many Errors as is imagined.* But notwithstanding the great noise is made in the world about errors and opinions, I must do mankind that right as to say, *there are not so many men in errors and wrong opinions as is commonly supposed.* Not that I think they embrace the truth, but indeed, because concerning those doctrines they keep such a stir about, they have no thought, no opinion at all; for if any one should a little catechise the greatest part of the partisans of most of the sects in the world, he would not find, concerning those matters they are so zealous for, that they have any opinions of their own; much less would he have reason to think, that they took them upon the examination of arguments, and appearance of probability. They are resolved to stick to a party, that education or interest has engaged them in; and there, like the common soldiers of an army, show their courage and warmth as their leaders direct, without ever examining or so much as knowing the cause they contend for. If a man's life shows that he has no serious regard for religion, for what reason should we think that he beats

his head about the opinions of his church, and troubles himself to examine the grounds of this or that doctrine? It is enough for him to obey his leaders, to have his hand and his tongue ready for the support of the common cause, and thereby approve himself to those who can give him credit, preferment or protection in that society. Thus men become professors of, and combatants for those opinions, they were never convinced of, nor proselytes to, no, nor ever had so much as floating in their heads; and though one cannot say, there are fewer improbable or erroneous opinions in the world than there are, yet this is certain, there are fewer that actually assent to them, and mistake them for truths, than is imagined.

CHAP. XXI.

OF THE DIVISION OF THE SCIENCES.

§ 1. *Three Sorts.*

ALL that can fall within the compass of human understanding, being either, *First*, The nature of things as they are in themselves, their relations, and their manner of operation; or, *Secondly*, That which man himself ought to do, as a rational and voluntary agent, for the attainment of any end, especially happiness; or, *Thirdly*, The ways and means whereby the knowledge of both the one and the other of these are attained and communicated; I think *science* may be divided properly into these *three sorts*.

§ 2. 1. Physica.

First, The knowledge of things, as they are in their own proper beings, their constitutions, properties, and operations; whereby I mean not only matter and body, but spirits also, which have their proper natures, constitutions, and operations, as well as bodies. This in a little more enlarged sense of the word, I call Φυσικὴ, or *natural philosophy*. The end of this is bare speculative truth; and whatsoever can afford the mind of man any such, falls under this branch, whether it be God himself,

angels, spirits, bodies, or any of their affections, as number and figure, &c.

§ 3. 2. Practica.

Secondly, Πρακτικὴ, The skill of right applying our own powers and actions, for the attainment of things good and useful. The most considerable under this head is *ethics*, which is the seeking out those rules and measures of human actions, which lead to happiness, and the means to practise them. The end of this is not bare speculation, and the knowledge of truth, but right, and a conduct suitable to it.

§ 4. 3. Σημειωτικὴ.

Thirdly, The third branch may be called Σημειωτικὴ, or *the doctrine of signs*, the most usual whereof being words, it is aptly enough termed also Λογικὴ, *logic*; the business whereof, is to consider the nature of signs the mind makes use of for the understanding of things, or conveying its knowledge to others; for since the things the mind contemplates are none of them, besides itself, present to the understanding, it is necessary that something else, as a sign or representation of the thing it considers, should be present to it; and these are *ideas*. And because the scene of *ideas*, that makes one man's thoughts, cannot be laid open to the immediate view of another, nor laid up any where but in the memory, a no very sure repository; therefore to communicate our thoughts to one another, as well as record them for our own use, signs of our *ideas* are also necessary. Those which men have found most convenient, and therefore generally make use of, are articulate sounds. The consideration then of *ideas* and *words*, as the great instruments of knowledge, makes no despicable part of their contemplation, who would take a view of human knowledge in the whole extent of it; and perhaps if they were distinctly weighed, and duly considered, they would afford us another sort of logic and critique than what we have been hitherto acquainted with.

§ 5. *This is the first Division of the Objects of Knowledge.*

This seems to me *the first and most general, as well as na-*

tural diviſion of the objects of our underſtanding; for a man can employ his thoughts about nothing, but either the contemplation of *things* themſelves for the diſcovery of truth, or about the things in his own power, which are his own *actions*, for the attainment of his own ends; or the *ſigns* the mind makes uſe of, both in the one and the other, and the right ordering of them for its clearer information. All which three, *viz. things* as they are in themſelves knowable, *actions* as they depend on us in order to happineſs, and the right uſe of *ſigns* in order to knowledge, being *toto cœlo* different, they ſeemed to me to be the three great provinces of the intellectual world, wholly ſeparate and diſtinct one from another.

OF THE

CONDUCT OF THE UNDERSTANDING.

Quid tam temerarium tumque indignum sapientis gravitate atque constantia, quam aut falsum sentire, aut quod non satis explorate perceptum sit et cognitum sine ulla dubitatione defendere? Cic. de Natura Deorum, lib. 1.

§ 1. *Introduction.*

THE last resort a man has recourse to in the conduct of himself, is his understanding; for though we distinguish the faculties of the mind, and give the supreme command to the will, as to an agent, yet the truth is, the man, which is the agent, determines himself to this or that voluntary action, upon some precedent knowledge, or appearance of knowledge, in the understanding. No man ever sets himself about any thing but upon some view or other, which serves him for a reason for what he does: and whatsoever faculties he employs, the understanding, with such light as it has, well or ill informed, constantly leads; and by that light, true or false, all his operative powers are directed. The will itself, how absolute and uncontroulable soever it may be thought, never fails in its obedience to the dictates of the understanding. Temples have their sacred images, and we see what influence they have always had over a great part of mankind; but in truth, the ideas and images in mens minds are the invisible powers that constantly govern them, and to these they all universally pay a ready submission. It is therefore of the highest concernment, that great care should be taken of the understanding, to conduct it right in the search of knowledge, and in the judgments it makes.

The logic now in use has so long possessed the chair, as the only art taught in the schools for the direction of the mind in the study of the arts and sciences, that it would perhaps be thought an affectation of novelty to suspect that rules that have served the learned world these two or three thousand years, and which, without any complaint of defects, the learned have rested in, are not sufficient to guide the understanding; and I should not doubt but this attempt would be censured as vanity or presumption, did not the great Lord Verulam's authority justify it; who, not servilely thinking learning could not be advanced beyond what it was, because for many ages it had not been, did not rest in the lazy approbation and applause of what was, because it was, but enlarged his mind to what might be. In his preface to his *Novum Organum* concerning logic, he pronounces thus: *Qui summas dialecticæ partes tribuerunt, atque inde fidissima scientiis præsidia comparari putarunt, verissime et optime viderunt intellectum humanum sibi permissum merito suspectum esse debere. Verum infirmior omnino est malo medicina; nec ipsa mali expers. Siquidem dialectica, quæ recepta est, licet ad civilia et artes, quæ in sermone et opinione positæ sunt, rectissime adhibeatur; naturæ tamen subtilitatem longo intervallo non attingit, et prensando quod non capit, ad errores potius stabiliendos et quasi figendos, quam ad viam veritati aperiendam valuit.*

"They, *says he*, who attributed so much to logic, "perceived very well and truly, that it was not safe to "trust the understanding to itself, without the guard "of any rules. But the remedy reached not the evil, "but became a part of it: For the logic which took "place, though it might do well enough in civil affairs, and the arts which consisted in talk and opinion, yet comes very far short of subtilty in the real "performances of nature; and catching at what it cannot reach, has served to confirm and establish errors, "rather than to open a way to truth.". And therefore a little after he says, "That it is absolutely necessary "that a better and perfecter use and employment of the "mind and understanding should be introduced." *Ne-*

ceſſario requiritur ut melior et perfectior mentis et intellectus humani uſus et adoperatio introducatur.

§ 2. *Parts.*

THERE is, it is viſible, great variety in mens underſtandings, and their natural conſtitutions put ſo wide a difference between ſome men in this reſpect, that art and induſtry would never be able to maſter, and their very natures ſeem to want a foundation to raiſe on it that which other men eaſily attain unto. Amongſt men of equal education, there is great inequality of parts; and the woods of America, as well as the ſchools of Athens, produce men of ſeveral abilities in the ſame kind. Though this be ſo, yet I imagine moſt men come very ſhort of what they might attain unto in their ſeveral degrees, by a neglect of their underſtandings: A few rules of logic are thought ſufficient in this caſe for thoſe who pretend to the higheſt improvement; whereas, I think there are a great many natural defects in the underſtanding capable of amendment, which are overlooked and wholly neglected; and it is eaſy to perceive that men are guilty of a great many faults in the exerciſe and improvement of this faculty of the mind, which hinder them in their progreſs, and keep them in ignorance and error all their lives. Some of them I ſhall take notice of, and endeavour to point out proper remedies for, in the following diſcourſe.

§ 3. *Reaſoning.*

BESIDES the want of determined ideas, and of ſagacity and exerciſe in finding out and laying in order intermediate ideas, there are three miſcarriages that men are guilty of in reference to their reaſon, whereby this faculty is hindered in them from that ſervice it might do and was deſigned for; and he that reflects upon the actions and diſcourſes of mankind, will find their defects in this kind very frequent, and very obſervable.

1. The firſt is of thoſe who ſeldom reaſon at all, but do and think according to the example of others, whether parents, neighbours, miniſters, or who elſe they are pleaſed to make choice of to have an implicit faith in, for

the saving of themselves the pains and trouble of thinking and examining for themselves.

2. The second is of those who put passion in the place of reason, and being resolved that shall govern their actions and arguments, neither use their own nor hearken to other people's reason, any farther than it suits their humour, interest, or party; and these, one may observe, commonly content themselves with words which have no distinct ideas to them, though, in other matters that they come with an unbiassed indifferency to, they want not abilities to talk and hear reason, where they have no secret inclination that hinders them from being tractable to it.

3. The third sort is of those who readily and sincerely follow reason, but for want of having that which one may call *large, sound, round-about sense*, have not a full view of all that relates to the question, and may be of moment to decide it. We are all short-sighted, and very often see but one side of a matter; our views are not extended to all that has a connection with it. From this defect I think no man is free. We see but in part, and we know but in part, and therefore it is no wonder we conclude not right from our partial views. This might instruct the proudest esteemer of his own parts how useful it is to talk and consult with others, even such as come short of him in capacity, quickness and penetration; for since no one sees all, and we generally have different prospects of the same thing, according to our different, as I may say, positions to it, it is not incongruous to think, nor beneath any man to try, whether another may not have notions of things which have escaped him, and which his reason would make use of if they came into his mind. The faculty of reasoning seldom or never deceives those who trust to it; its consequences from what it builds on are evident and certain; but that which it oftenest, if not only, misleads us in is, that the principles from which we conclude, the grounds upon which we bottom our reasoning, are but a part, something is left out which should go into the reckoning to make it just and exact. Here we may

imagine a vast and almost infinite advantage that angels and separate spirits may have over us, who, in their several degrees of elevation above us, may be endowed with more comprehensive faculties, and some of them perhaps have perfect and exact views of all finite beings that come under their consideration, can, as it were, in the twinkling of an eye, collect together all their scattered and almost boundless relations. A mind so furnished, what reason has it to acquiesce in the certainty of its conclusions?

In this we may see the reason why some men of study and thought, that reason right, and are lovers of truth, do make no great advances in their discoveries of it. Error and truth are uncertainly blended in their minds, their decisions are lame and defective, and they are very often mistaken in their judgments; the reason whereof is, they converse but with one sort of men, they read but one sort of books, they will not come in the hearing but of one sort of notions; the truth is, they canton out to themselves a little *Goshen* in the intellectual world, where light shines, and, as they conclude, day blesses them; but the rest of that vast *expansum* they give up to night and darkness, and so avoid coming near it. They have a pretty traffic with known correspondents in some little creek, within that they confine themselves, and are dexterous managers enough of the wares and products of that corner with which they content themselves; but will not venture out into the great ocean of knowledge, to survey the riches that nature hath stored other parts with, no less genuine, no less solid, no less useful, than what was fallen to their lot in the admired plenty and sufficiency of their own little spot, which to them contains whatsoever is good in the universe. Those who live thus mewed up within their own contracted territories, and will not look abroad beyond the boundaries that chance, conceit, or laziness, has set to their inquiries, but live separate from the notions, discourses, and attainments of the rest of mankind, may not amiss be represented by the inhabitants of the *Marian* islands, who being separated by a large track of sea from all

communion with the heritable parts of the earth, thought themselves the only people of the world; and though the straitness of the conveniencies of life amongst them had never reached so far as to the use of fire, till the *Spaniards*, not many years since, in their voyages from *Acapulco* to *Manilla*, brought it amongst them; yet in the want and ignorance of almost all things, they looked upon themselves, even after that the *Spaniards* had brought amongst them the notice of variety of nations abounding in sciences, arts, and conveniencies of life, of which they knew nothing, they looked upon themselves, I say, as the happiest and wisest people of the universe. But for all that, nobody, I think, will imagine them deep naturalists, or solid metaphysicians; nobody will deem the quickest-sighted amongst them to have very enlarged views in ethics or politics; nor can any one allow the most capable amongst them to be advanced so far in his understanding, as to have any other knowledge but of the few little things of his and the neighbouring islands within his commerce; but far enough from that comprehensive enlargement of mind which adorns a soul devoted to truth, assisted with letters, and a free generation of the several views and sentiments of thinking men of all sides. Let not men, therefore, that would have a sight of what every one pretends to be desirous to have a sight of, truth in its full extent, narrow and blind their own prospect. Let not men think there is no truth but in the sciences that they study, or the books that they read. To prejudge other mens notions before we have looked into them, is not to show their darkness, but to put out our own eyes. *Try all things, hold fast that which is good*, is a divine rule, coming from the Father of light and truth; and it is hard to know what other way men can come at truth, to lay hold of it, if they do not dig and search for it as for gold and hid treasure; but he that does so must have much earth and rubbish before he gets the pure metal; sand and pebbles and dross usually lie blended with it, but the gold is nevertheless gold, and will en-

rich the man that employs his pains to seek and separate it. Neither is there any danger he should be deceived by the mixture. Every man carries about him a touch-stone, if he will make use of it, to distinguish substantial gold from superficial glitterings, truth from appearances; and indeed the use and benefit of this touch-stone, which is natural reason, is spoiled and lost only by assumed prejudices, over-weening presumption, and narrowing our minds. The want of exercising it in the full extent of things intelligible, is that which weakens and extinguishes this noble faculty in us. Trace it, and see whether it be not so. The day-labourer in a country village has commonly but a small pittance of knowledge, because his ideas and notions have been confined to the narrow bounds of a poor conversation and employment; the low mechanic of a country town does somewhat outdo him, porters and coblers of great cities surpass them. A country gentleman, who leaving Latin and learning in the university, removes thence to his mansion-house, and associates with neighbours of the same strain, who relish nothing but hunting and a bottle; with those alone he spends his time, with these alone he converses, and can away with no company whose discourse goes beyond what claret and dissoluteness inspires. Such a patriot formed in this happy way of improvement, cannot fail, as we see, to give notable decisions upon the bench at quarter-sessions, and eminent proofs of his skill in politics, when the strength of his purse and party have advanced him to a more conspicuous station. To such a one truly an ordinary coffee-house gleaner of the city is an errant statesman, and as much superior too, as a man, conversant about *Whitehall* and the court, is to an ordinary shop-keeper. To carry this a little farther: Here is one muffled up in the zeal and infallibility of his own sect, and will not touch a book, or enter into debate with a person that will question any of those things which to him are sacred. Another surveys our differences in religion with an equitable and fair indifference, and so finds probably that none of them are in every thing unexceptionable. These divisions and systems

were made by men, and carry the mark of fallible on them; and in those whom he differs from, and till he opened his eyes had a general prejudice against, he meets with more to be said for a great many things than before he was aware of, or could have imagined. Which of these two now is most likely to judge right in our religious controversies, and to be more stored with truth, the mark all pretend to aim at? All these men that I have instanced in, thus unequally furnished with truth, and advanced in knowledge, I suppose of equal natural parts; all the odds between them has been the different scope that has been given to their understandings to range in, for the gathering up of information, and furnishing their heads with ideas, notions, and observations, whereon to employ their minds, and form their understandings.

It will possibly be objected, who is sufficient for all this? I answer, more than can be imagined. Every one knows what his proper business is, and what, according to the character he makes of himself, the world may justly expect of him; and to answer that, he will find he will have time and opportunity enough to furnish himself, if he will not deprive himself, by a narrowness of spirit, of those helps that are at hand. I do not say, to be a good geographer, that a man should visit every mountain, river, promontory, and creek upon the face of the earth, view the buildings, and survey the land every where, as if he were going to make a purchase; but yet every one must allow that he shall know a country better that makes often sallies into it, and traverses it up and down, than he that like a mill-horse goes still round in the same track, or keeps within the narrow bounds of a field or two that delight him. He that will inquire out the best books in every science, and inform himself of the most material authors of the several sects of philosophy and religion, will not find it an infinite work to acquaint himself with the sentiments of mankind concerning the most weighty and comprehensive subjects. Let him exercise the freedom of his reason and understanding in such a latitude as this, and his mind will be

strengthened, his capacity enlarged, his faculties improved; and the light which the remote and scattered parts of truth will give to one another, will so assist his judgment, that he will seldom be widely out, or miss giving proof of a clear head, and a comprehensive knowledge. At least, this is the only way I know to give the understanding its due improvement to the full extent of its capacity, and to distinguish the two most different things I know in the world, a logical chicaner from a man of reason. Only he that would thus give the mind its flight, and send abroad his inquiries into all parts after truth, must be sure to settle in his head determined ideas of all that he employs his thoughts about, and never fail to judge himself, and judge unbiassedly of all that he receives from others, either in their writings or discourses. Reverence or prejudice must not be suffered to give beauty or deformity to any of their opinions.

§ 4. *Of Practice and Habits.*

We are born with faculties and powers capable almost of any thing, such at least as would carry us farther than can easily be imagined; but it is only the exercise of those powers which gives us ability and skill in any thing, and leads us towards perfection.

A middled-aged ploughman will scarce ever be brought to the carriage and language of a gentleman, though his body be as well proportioned, and his joints as supple, and his natural parts not any way inferior. The legs of a dancing-master, and the fingers of a musician, fall as it were naturally without thought or pains into regular and admirable motions. Bid them change their parts, and they will in vain endeavour to produce like motions in the members not used to them, and it will require length of time and long practice to attain but some degrees of a like ability. What incredible and astonishing actions do we find rope-dancers and tumblers bring their bodies to! Not but that sundry in almost all manual arts are as wonderful; but I name those which the world takes notice of for such, because on that very account they give money to see them. All these admired motions, beyond the reach and almost the

conception of unpractised spectators, are nothing but the mere effects of use and industry in men, whose bodies have nothing peculiar in them from those of the amazed lookers on.

As it is in the body, so it is in the mind; practice makes it what it is; and most, even of those excellencies which are looked on as natural endowments, will be found, when examined into more narrowly, to be the product of exercise, and to be raised to that pitch only by repeated actions. Some men are remarked for pleasantness in raillery; others for apologues and apposite diverting stories. This is apt to be taken for the effect of pure nature, and that the rather, because it is not got by rules, and those who excel in either of them never purposely set themselves to the study of it as an art to be learned. But yet it is true, that at first some lucky hit which took with somebody and gained him commendation, encouraged him to try again, inclined his thoughts and endeavours that way, till at last he insensibly got a facility in it, without perceiving how, and that is attributed wholly to nature, which was much more the effect of use and practice. I do not deny that natural disposition may often give the first rise to it, but that never carries a man far without use and exercise, and it is practice alone that brings the powers of the mind as well as those of the body to their perfection. Many a good poetic vein is buried under a trade, and never produces any thing for want of improvement. We see the ways of discourse and reasoning are very different, even concerning the same matter, at court and in the university; and he that will go but from *Westminster-hall* to the *Exchange* will find a different genius and turn in their ways of talking, and yet one cannot think that all whose lot fell in the city, were born with different parts from those who were bred at the university or inns of court.

To what purpose all this, but to show that the difference, so observable in mens understandings and parts, does not arise so much from their natural faculties as acquired habits. He would be laughed at that should go

about to make a fine dancer out of a country hedger at past fifty; and he will not have much better success who shall endeavour at that age to make a man reason well, or speak handsomely, who has never been used to it, though you should lay before him a collection of all the best precepts of logic or oratory. Nobody is made any thing by hearing of rules, or laying them up in his memory; practice must settle the habit of doing, without reflecting on the rule, and you may as well hope to make a good painter or musician extempore by a lecture and instruction in the arts of music and painting, as a coherent thinker, or strict reasoner, by a set of rules, showing him wherein right reasoning consists.

This being so, that defects and weakness in mens understandings, as well as other faculties, come from want of a right use of their own minds, I am apt to think the fault is generally mislaid upon nature, and there is often a complaint of want of parts, when the fault lies in want of a due improvement of them. We see men frequently dexterous and sharp enough in making a bargain, who, if you reason with them about matters of religion, appear perfectly stupid.

§ 5. *Ideas.*

I will not here, in what relates to the right conduct and improvement of the understanding, repeat again the getting clear and determined *ideas*, and the employing our thoughts rather about them than about founds put for them, nor of settling the signification of words which we use with ourselves in the search of truth, or with others in discoursing about it. Those hinderances of our understandings in the pursuit of knowledge, I have sufficiently enlarged upon in another place; so that nothing more needs here to be said of those matters.

§ 6. *Principles.*

There is another fault that stops or misleads men in their knowledge, which I have also spoken something of, but yet is necessary to mention here again, that we may examine it to the bottom, and see the root it springs from; and that is, a custom of taking up with principles that are not self-evident, and very often not so much as

true. It is not unusual to see men rest their opinions upon foundations that have no more certainty and solidity than the propositions built on them, and embraced for their sake. Such foundations are these and the like, viz. the founders or leaders of my party are good men, and therefore their tenets are true; it is the opinion of a sect that is erroneous, therefore it is false; it hath been long received in the world, therefore it is true; or it is new, and therefore false.

These, and many the like, which are by no means the measures of truth and falsehood, the generality of men make the standards by which they accustom their understanding to judge; and thus they falling into a habit of determining truth and falsehood by such wrong measures, it is no wonder they should embrace error for certainty, and be very positive in things they have no ground for.

There is not any who pretends to the least reason, but when any of these his false maxims are brought to the test, must acknowledge them to be fallible, and such as he will not allow in those that differ from him; and yet after he is convinced of this, you shall see him go on in the use of them, and the very next occasion that offers, argue again upon the same grounds. Would one not be ready to think that men are willing to impose upon themselves, and mislead their own understandings, who conduct them by such wrong measures, even after they see they cannot be relied on? But yet they will not appear so blameable as may be thought at first sight; for I think there are a great many that argue thus in earnest, and do it not to impose on themselves or others; they are persuaded of what they say, and think there is weight in it, though in a like case they have been convinced there is none; but men would be intolerable to themselves, and contemptible to others, if they should embrace opinions without any ground, and hold what they could give no manner of reason for. True or false, solid or sandy, the mind must have some foundation to rest itself upon, and, as I have remarked in another place, it no sooner entertains any proposition, but it presently

hastens to some hypothesis to bottom it on; till then it is unquiet and unsettled. So much do our own very tempers dispose us to a right use of our understandings, if we would follow as we should the inclinations of our nature.

In some matters of concernment, especially those of religion, men are not permitted to be always wavering and uncertain, they must embrace and profess some tenets or other; and it would be a shame, nay, a contradiction too heavy for any one's mind to lie constantly under, for him to pretend seriously to be persuaded of the truth of any religion, and yet not to be able to give any reason of his belief, or to say any thing for his preference of this to any other opinion; and therefore they must make use of some principles or other, and those can be no other than such as they have and can manage; and to say they are not in earnest persuaded by them, and do not rest upon those they make use of, is contrary to experience, and to allege that they are not misled when we complain they are.

If this be so, it will be urged, why then do they not make use of sure and unquestionable principles, than rest on such grounds as may deceive them, and will, as is visible, serve to support error as well as truth?

To this I answer, the reason why they do not make use of better and surer principles, is because they cannot: But this inability proceeds not from want of natural parts (for those few whose case that is are to be excused), but for want of use and exercise. Few men are from their youth accustomed to strict reasoning, and to trace the dependence of any truth in a long train of consequences to its remote principles, and to observe its connection; and he that by frequent practice has not been used to this employment of his understanding, it is no more wonder that he should not, when he is grown into years, be able to bring his mind to it, than that he should not be on a sudden able to grave or design, dance on the ropes, or write a good hand, who has never practised either of them.

Nay, the moſt of men are ſo wholly ſtrangers to this, that they do not ſo much as perceive their want of it; they diſpatch the ordinary buſineſs of their callings by rote, as we ſay, as they have learned it, and if at any time they miſs ſucceſs, they impute it to any thing rather than want of thought or ſkill; that they conclude (becauſe they know no better) they have in perfection; or if there be any ſubject that intereſt or fancy has recommended to their thoughts, their reaſoning about it is ſtill after their own faſhion; be it better or worſe, it ſerves their turns, and is the beſt they are acquainted with; and therefore when they are led by it into miſtakes, and their buſineſs ſucceeds accordingly, they impute it to any croſs accident, or default of others, rather than to their own want of underſtanding; that is what nobody diſcovers or complains of in himſelf. Whatſoever made his buſineſs to miſcarry, it was not of right thought and judgment in himſelf; he ſees no ſuch defect in himſelf, but is ſatisfied that he carries on his deſigns well enough by his own reaſoning, or at leaſt ſhould have done, had it not been for unlucky traverſes not in his power. Thus being content with this ſhort and very imperfect uſe of his underſtanding, he never troubles himſelf to ſeek out methods of improving his mind, and lives all his life without any notion of cloſe reaſoning, in a continued connection of a long train of conſequences from ſure foundations, ſuch as is requiſite for the making out and clearing moſt of the ſpeculative truths moſt men own to believe and are moſt concerned in. Not to mention here what I ſhall have occaſion to inſiſt on by and by more fully, viz. that in many caſes it is not one ſeries of conſequences will ſerve the turn, but many different and oppoſite deductions muſt be examined and laid together, before a man can come to make a right judgment of the point in queſtion. What then can be expected from men that neither ſee the want of any ſuch kind of reaſoning as this; nor if they do, know they how to ſet about it, or could perform it? You may as well ſet a country man, who ſcarce knows the figures,

and never cast up a sum of three particulars, to state a merchant's long account, and find the true balance of it.

What then should be done in this case? I answer, we should always remember what I said above, that the faculties of our souls are improved and made useful to us, just after the same manner as our bodies are. Would you have a man write or paint, dance or fence well, or perform any other manual operation dexterously and with ease; let him have ever so much vigour and activity, suppleness and address, naturally, yet nobody expects this from him unless he has been used to it, and has employed time and pains in fashioning and forming his hand or outward parts to these motions. Just so it is in the mind; would you have a man reason well, you must use him to it by times, exercise his mind in observing the connection of ideas, and follow them in train. Nothing does this better than mathematics, which therefore, I think, should be taught all those who have the time and opportunity, not so much to make them mathematicians, as to make them reasonable creatures; for though we all call ourselves so, because we are born to it if we please, yet we may truly say Nature gives us but the seeds of it; we are born to be, if we please, rational creatures, but it is use and exercise only that makes us so, and we are indeed so no farther than industry and application has carried us; and therefore in ways of reasoning which men have not been used to, he that will observe the conclusions they take up, must be satisfied they are not all rational.

This has been the less taken notice of, because every one in his private affairs uses some sort of reasoning or other, enough to denominate him reasonable; but the mistake is, that he that is found reasonable in one thing, is concluded to be so in all, and to think or say otherwise is thought so unjust an affront, and so senseless a censure, that nobody ventures to do it: It looks like the degradation of a man below the dig-

nity of his nature. It is true, that he that reaſons well in any one thing, has a mind naturally capable of reaſoning well in others, and to the ſame degree of ſtrength and clearneſs, and poſſibly much greater, had his underſtanding been ſo employed. But it is as true, that he who can reaſon well to-day about one ſort of matters, cannot at all reaſon to-day about others, though perhaps a year hence he may. But wherever a man's rational faculty fails him, and will not ſerve him to reaſon, there we cannot ſay he is rational, how capable ſoever he may be by time and exerciſe to become ſo.

Try in men of low and mean education, who have never elevated their thoughts above the ſpade and the plough, nor looked beyond the ordinary drudgery of a day-labourer: Take thoughts of ſuch an one, uſed for many years to one track, out of that narrow compaſs he has been all his life confined to, you will find him no more capable of reaſoning than almoſt a perfect natural. Some one or two rules, on which their concluſions immediately depend, you will find, in moſt men, have governed all their thoughts; theſe, true or falſe, have been the maxims they have been guided by: Take theſe from them, and they are perfectly at a loſs, their compaſs and pole-ſtar then are gone, and their underſtanding is perfectly at a nonplus, and therefore they either immediately return to their old maxims again as the foundations of all truth to them, notwithſtanding all that can be ſaid to ſhow their weakneſs, or if they give them up to their reaſons, they with them give up all truth and further inquiry, and think there is no ſuch thing as certainty; for if you would enlarge their thoughts, and ſettle them upon more remote and ſurer principles, they either cannot eaſily apprehend them, or if they can, know not what uſe to make of them; for long deductions from remote principles is what they have not been uſed to, and cannot manage.

What then, can grown men never be improved or enlarged in their underſtandings? I ſay not ſo; but

this I think I may ſay, that it will not be done without induſtry and application, which will require more time and pains than grown men, ſettled in their courſe of life, will allow to it, and therefore very ſeldom is done. And this very capacity of attaining it by uſe and exerciſe only, brings us back to that which I laid down before, that it is only practice that improves our minds as well as bodies, and we muſt expect nothing from our underſtandings any farther than they are perfected by habits.

The Americans are not all born with worſe underſtandings than the Europeans, though we ſee none of them have ſuch reaches in the arts and ſciences. And among the children of a poor country man, the lucky chance of education, and getting into the world, gives one infinitely the ſuperiority in parts over the reſt, who, continuing at home, had continued alſo juſt of the ſame ſize with his brethren.

He that has to do with young ſcholars, eſpecially in mathematics, may perceive how their minds open by degrees, and how it is exerciſe alone that opens them. Sometimes they will ſtick a long time at a part of a demonſtration, not for want of will and application, but really for want of perceiving the connection of two ideas, that to one whoſe underſtanding is more exerciſed, is as viſible as any thing can be. The ſame would be with a grown man beginning to ſtudy mathematics; the underſtanding, for want of uſe, often ſticks in very plain way; and he himſelf that is ſo puzzled, when he comes to ſee the connection, wonders what it was he ſtuck at in a caſe ſo plain.

§ 7. *Mathematics.*

I HAVE mentioned *mathematics* as a way to ſettle in the mind an habit of reaſoning cloſely and in train; not that I think it neceſſary that all men ſhould be deep mathematicians, but that having got the way of reaſoning which that ſtudy neceſſarily brings the mind to, they might be able to transfer it to other parts of knowledge as they ſhould have occaſion. For in all ſorts of reaſoning, every ſingle ar-

gument ſhould be managed as a mathematical demonſtration; the connection and dependence of ideas ſhould be followed, till the mind is brought to the ſource on which it bottoms, and obſerves the coherence all along; though in proofs of probability, one ſuch train is not enough to ſettle the judgment, as in demonſtrative knowledge.

Where a truth is made out by one demonſtration, there needs no farther inquiry; but in probabilities where there wants demonſtration to eſtabliſh the truth beyond doubt, there it is not enough to trace one argument to its ſource, and obſerve its ſtrength and weakneſs, but all the arguments, after having been ſo examined on both ſides, muſt be laid in balance one againſt another, and upon the whole the underſtanding determine its aſſent.

This is a way of reaſoning the underſtanding ſhould be accuſtomed to, which is ſo different from what the illiterate are uſed to, that even learned men oftentimes ſeem to have very little or no notion of it. Nor is it to be wondered, ſince the way of diſputing in the ſchools leads them quite away from it, by inſiſting on one topical argument, by the ſucceſs of which the truth or falſehood of the queſtion is to be determined, and victory adjudged to the opponent or defendant; which is all one as if one ſhould balance an account by one ſum charged and diſcharged, when there are an hundred others to be taken into conſideration.

This, therefore, it would be well if mens minds were accuſtomed to, and that early, that they might not erect their opinions upon one ſingle view, when ſo many other are requiſite to make up the account, and muſt come into the reckoning before a man can form a right judgment. This would enlarge their minds, and give a due freedom to their underſtandings, that they might not be led into error by preſumption, lazineſs or precipitancy; for I think nobody can approve ſuch a conduct of the underſtanding, as ſhould miſlead it from truth, though it be ever ſo much in faſhion to make uſe of it.

To this perhaps it will be objected, that to manage the understanding as I propose, would require every man to be a scholar, and to be furnished with all the materials of knowledge, and exercised in all the ways of reasoning. To which I answer, that it is a shame for those that have time, and the means to attain knowledge, to want any helps or assistance for the improvement of their understandings that are to be got; and to such I would be thought here chiefly to speak. Those, methinks, who by the industry and parts of their ancestors, have been set free from a constant drudgery to their backs and their bellies, should bestow some of their spare time on their heads and upon their minds, by some trials and essays in all the sorts and matters of reasoning. I have before mentioned *mathematics*, wherein *algebra* gives new helps and views to the understanding. If I propose these, it is not, as I said, to make every man a thorough mathematician, or a deep algebraist; but yet I think the study of them is of infinite use even to grown men; first by experimentally convincing them that to make any one reason well, it is not enough to have parts wherewith he is satisfied, and that serve him well enough in his ordinary course: A man in those studies will see, that however good he may think his understanding, yet in many things, and those very visible, it may fail him. This would take off that presumption that most men have of themselves in this part, and they would not be so apt to think their minds wanted no helps to enlarge them, that there could be nothing added to the acuteness and penetration of their understandings.

Secondly, The study of *mathematics* would show them the necessity there is, in reasoning, to separate all the distinct ideas, and see the habitudes that all those concerned in the present inquiry have to one another, and to lay by those which relate not to the proposition in hand, and wholly to leave them out of the reckoning. This is that, which in other subjects besides quantity, is what is absolutely requisite to just

reasoning, though in them it is not so easily observed, nor so carefully practised. In those parts of knowledge where it is thought demonstration has nothing to do, men reason as it were in the lump; and if, upon a summary and confused view, or upon a partial consideration, they can raise the appearance of a probability, they usually rest content, especially if it be in a dispute, where every little straw is laid hold on, and every thing that can but be drawn in any way to give colour to the argument is advanced with ostentation. But that mind is not in a posture to find the truth, that does not distinctly take all the parts asunder, and, omitting what is not all to the point, draw a conclusion from the result of all the particulars which any way influence it. There is another no less useful habit to be got by an application to mathematical demonstrations, and that is of using the mind to a long train of consequences. But having mentioned that already, I shall not again here repeat it.

As to men whose fortunes and time is narrower, what may suffice them is not of that vast extent as may be imagined, and so comes not within the objection.

Nobody is under an obligation to know every thing. Knowledge and science in general is the business only of those who are at ease and leisure: Those who have particular callings ought to understand them; and it is no unreasonable proposal, nor impossible to be compassed, that they should think and reason right about what is their daily employment. This one cannot think them incapable of, without levelling them with the brutes, and charging them with a stupidity below the rank of rational creatures.

§ 8. *Religion.*

Besides his particular calling for the support of this life, every one has a concern in a future life, which he is bound to look after. This engages his thoughts in *religion;* and here it mightily lies upon him to understand and reason right. Men therefore cannot be excused from understanding the words, and framing the general notions relating to *religion* right. The

one day of seven, besides other days of rest, allows in the Christian world time enough for this (had they no other idle hours), if they would but make use of these vacancies from their daily labour, and apply themselves to an improvement of knowledge, with as much diligence as they often do to a great many other things that are useless, and had but those that would enter them, according to their several capacities, in a right way to this knowledge. The original make of their minds is like that of other men, and they would be found not to want understanding fit to receive the knowledge of *religion*, if they were a little encouraged and helped in it as they should be; for there are instances of very mean people, who have raised their minds to a great sense and understanding of *religion*; and though these have not been so frequent as could be wished, yet they are enough to clear that condition of life from a necessity of gross ignorance, and to show that more might be brought to be rational creatures and Christians (for they can hardly be thought really to be so, who, wearing the name, know not so much as the very principles of that religion), if due care were taken of them: For, if I mistake not, the peasantry lately in *France* (a rank of people under a much heavier pressure of want and poverty than the day-labourers in *England*) of the reformed *religion*, understood it much better, and could say more for it, than those of a higher condition among us.

But if it shall be concluded, that the meaner sort of people must give themselves up to a brutish stupidity in the things of their nearest concernment, which I see no reason for, this excuses not those of a freer fortune and education, if they neglect their understandings, and take no care to employ them as they ought, and set them right in the knowledge of those things, for which principally they were given them. At least those whose plentiful fortunes allow them the opportunities and helps of improvements, are not so few, but that it might be hoped great advancements might be made in knowledge of all kinds, especially in that

of the greateſt concern and largeſt views, if men would make a right uſe of their faculties, and ſtudy their own underſtandings.

§ 9. *Ideas.*

OUTWARD corporeal objects, that conſtantly importune our ſenſes, and captivate our appetites, fail not to fill our heads with lively and laſting *ideas* of that kind. Here the mind needs not be ſet upon getting greater ſtore; they offer themſelves faſt enough, and are uſually entertained in ſuch plenty, and lodged ſo carefully, that the mind wants room or attention for others that it has more uſe and need of. To fit the underſtanding therefore, for ſuch reaſoning as I have been above ſpeaking of, care ſhould be taken to fill it with moral and more abſtract *ideas*; for theſe not offering themſelves to the ſenſes, but being to be framed to the underſtanding, people are generally ſo neglectful of a faculty they are apt to think wants nothing, that I fear moſt mens minds are more unfurniſhed with ſuch *ideas* than is imagined. They often uſe the words, and how can they be ſuſpected to want the *ideas*? What I have ſaid in the third book of my Eſſay, will excuſe me from any other anſwer to this queſtion. But to convince people of what moment it is to their underſtandings to be furniſhed with ſuch abſtract *ideas* ſteady and ſettled in them, give me leave to aſk, how any one ſhall be able to know whether he be obliged to be juſt, if he has not eſtabliſhed *ideas* in his mind of obligation and of juſtice, ſince knowledge conſiſts in nothing but the perceived agreement or diſagreement of thoſe *ideas*? and ſo of all others the like, which concern our lives and manners. And if men do find a difficulty to ſee the agreement or diſagreement of two angles which lie before their eyes, unalterable in a diagram, how utterly impoſſible will it be to perceive it in *ideas* that have no other ſenſible objects to repreſent them to the mind but ſounds, with which they have no manner of conformity, and therefore had need to be clearly ſettled in the mind themſelves, if we would make any clear judgment

about them! This therefore is one of the first things the mind should be employed about in the right conduct of the understanding, without which it is impossible it should be capable of reasoning right about those matters. But in these, and all other *ideas*, care must be taken that they harbour no inconsistencies, and that they have a real existence where real existence is supposed, and are not mere chimeras with a supposed existence.

§ 10. *Prejudice.*

EVERY one is forward to complain of the *prejudices* that mislead other men or parties, as if he were free, and had none of his own. This being objected on all sides, it is agreed, that it is a fault and an hinderance to knowledge. What now is the cure? No other but this, that every man should let alone others *prejudices*, and examine his own. Nobody is convinced of his by the accusation of another; he recriminates by the same rule, and is clear. The only way to remove this great cause of ignorance and error out of the world, is for every one impartially to examine himself. If others will not deal fairly with their own minds, does that make my errors truths, or ought it to make me in love with them, and willing to impose on myself? If others love cataracts on their eyes, should that hinder me from couching mine as soon as I could? Every one declares against blindness, and yet who almost is not fond of that which dims his sight, and keeps the clear light out of his mind, which should lead him into truth and knowledge? False or doubtful positions, relied upon as unquestionable maxims, keep those in the dark from truth who build on them. Such are usually the *prejudices* imbibed from education, party, reverence, fashion, interest, &c. This is the mote which every one sees in his brother's eye, but never regards the beam in his own; for who is there almost that is ever brought fairly to examine his own principles, and see whether they are such as will bear the trial? But yet this should be one of the first things one should set about, and be scrupu-

lous in, who would rightly conduct his understanding in the search of truth and knowledge.

To those who are willing to get rid of this great hinderance of knowledge (for to such only I write), to those who would shake off this great and dangerous impostor *prejudice*, who dresses up falsehood in the likeness of truth, and so dexterously hoodwinks mens minds, as to keep them in the dark, with a belief that they are more in the light than any that do not see with their eyes; I shall offer this one mark whereby *prejudice* may be known: He that is strongly of any opinion, must suppose (unless he be self-condemned) that his persuasion is built upon good grounds, and that his assent is no greater than what the evidence of the truth he holds forces him to; and that they are arguments, and not inclination or fancy, that make him so confident and positive in his tenets. Now if, after all his profession, he cannot bear any opposition to his opinion, if he cannot so much as give a patient hearing, much less examine and weigh the arguments on the other side, does he not plainly confess it is *prejudice* governs him? and it is not the evidence of truth, but some lazy anticipation, some beloved presumption that he desires to rest undisturbed in. For if what he holds be, as he gives out, well fenced with evidence, and he sees it to be true, what need he fear to put it to the proof? If his opinion be settled upon a firm foundation, if the arguments that support it, and have obtained his assent, be clear, good, and convincing, why should he be shy to have it tried whether they be proof or not? He whose assent goes beyond his evidence, owes this excess of his adherence only to *prejudice*, and does in effect own it, when he refuses to hear what is offered against it; declaring thereby, that it is not evidence he seeks, but the quiet enjoyment of the opinion he is fond of, with a forward condemnation of all that may stand in opposition to it, unheard and unexamined; which, what is it but *prejudice? Qui æquum statuerit parte inauditâ alterâ etiamsi æquum statuerit, haud æquus fuerit.* He that

would acquit himself in this case as a lover of truth, not giving way to any preoccupation or bias that may mislead him, must do two things that are not very common, nor very easy.

§ 11. *Indifferency.*

First, he must not be in love with any opinion, or wish it to be true, till he knows it to be so, and then he will not need to wish it; for nothing that is false can deserve our good wishes, nor a desire that it should have the place and force of truth; and yet nothing is more frequent than this. Men are fond of certain tenets, upon no other evidence but respect and custom, and think they must maintain them, or all is gone, though they have never examined the ground they stand on, nor have ever made them out to themselves, or can make them out to others. We should contend earnestly for the truth, but we should first be sure that it is truth, or else we fight against God, who is the God of truth, and do the work of the devil, who is the father and propagator of lies; and our zeal, though never so warm, will not excuse us, for this is plainly prejudice.

§ 12. *Examine.*

Secondly, He must do that which he will find himself very averse to, as judging the thing unnecessary, or himself incapable of doing it. He must try whether his principles be certainly true or not, and how far he may safely rely upon them. This, whether fewer have the heart or the skill to do, I shall not determine; but this I am sure, this is that which every one ought to do, who professes to love truth, and would not impose upon himself, which is a surer way to be made a fool of than by being exposed to the sophistry of others. The disposition to put any cheat upon ourselves works constantly, and we are pleased with it, but are impatient of being bantered or misled by others. The inability I here speak of, is not any natural defect that makes men incapable of examining their own principles: To such, rules of conducting their understandings are useless, and that

is the caſe of very few: The great number is of thoſe whom the ill habit of never exerting their thoughts has diſabled; the powers of their minds are ſtarved by diſuſe, and have loſt that reach and ſtrength which nature fitted them to receive from exerciſe. Thoſe who are in a condition to learn the firſt rules of plain arithmetic, and could be brought to caſt up an ordinary ſum, are capable of this, if they had but accuſtomed their minds to reaſoning; but they that have wholly neglected the exerciſe of their underſtandings in this way, will be very far at firſt from being able to do it, and as unfit for it as one unpractiſed in figures to caſt up a ſhop-book, and perhaps think it as ſtrange to be ſet about it. And yet it muſt nevertheleſs be confeſſed to be a wrong uſe of our underſtandings, to build our tenets (in things where we are concerned to hold the truth) upon principles that may lead us into error. We take our principles at hap-hazard, upon truſt, and without ever having examined them, and then believe a whole ſyſtem, upon a preſumption that they are true and ſolid; and what is all this but childiſh, ſhameful, ſenſeleſs credulity?

In theſe two things, *viz.* an equal indifferency for all truth, I mean the receiving it in the love of it as truth, but not loving it for any other reaſon before we know it to be true, and in the examination of our principles, and not receiving any for ſuch, nor building on them, till we are fully convinced, as rational creatures, of their ſolidity, truth and certainty, conſiſts that freedom of the underſtanding which is neceſſary to a rational creature, and without which it is not truly an underſtanding. It is conceit, fancy, extravagance, any thing rather than underſtanding, if it muſt be under the conſtraint of receiving and holding opinions by the authority of any thing but their own, not fancied, but perceived evidence. This was rightly called impoſition, and is of all other the worſt and moſt dangerous ſort of it; for we impoſe upon ourſelves, which is the ſtrongeſt impoſition of all others; and we impoſe upon ourſelves in that part

which ought with the greatest care to be kept free from all imposition. The world is apt to cast great blame on those who have an indifferency for opinions, especially in religion. I fear this is the foundation of great error and worse consequences. To be indifferent which of two opinions is true, is the right temper of the mind that preserves it from being imposed on, and disposes it to examine with that indifferency, till it has done its best to find the truth; and this is the only direct and safe way to it; but to be indifferent whether we embrace falsehood or truth or no, is the great road to error. Those who are not indifferent which opinion is true, are guilty of this; they suppose, without examining, that what they hold is true, and then think they ought to be zealous for it. Those, it is plain by their warmth and eagerness, are not indifferent for their own opinions, but methinks are very indifferent whether they be true or false, since they cannot endure to have any doubts raised, or objections made against them; and it is visible they never have made any themselves, and so never having examined them, know not, nor are concerned, as they should be, to know whether they be true or false.

These are the common and most general miscarriages which I think men should avoid or rectify in a right conduct of their understandings, and should be particularly taken care of in education; the business whereof, in respect of knowledge, is not, as I think, to perfect a learner in all or any one of the sciences, but to give his mind that freedom, that disposition, and those habits that may enable him to attain any part of knowledge he shall apply himself to, or stand in need of, in the future course of his life.

This, and this only is well principling, and not the instilling a reverence and veneration for certain dogmas, under the specious title of principles, which are often so remote from that truth and evidence which belongs to principles, that they ought to be rejected as false and erroneous, and is often the cause to men so educated, when they come abroad into the world,

and find they cannot maintain the principles so taken up and rested in, to cast off all principles, and turn perfect sceptics, regardless of knowledge and virtue.

There are several weaknesses and defects in the understanding, either from the natural temper of the mind, or ill habits taken up, which hinder it in its progress to knowledge. Of these there are as many possibly to be found, if the mind were thoroughly studied, as there are diseases of the body, each whereof clogs and disables the understanding to some degree, and therefore deserves to be looked after and cured. I shall set down some few to excite men, especially those who make knowledge their business, to look into themselves, and observe whether they do not indulge some weakness, allow some miscarriages in the management of their intellectual faculty, which is prejudicial to them in the search of truth.

§ 13. *Observation.*

PARTICULAR matters of fact are the undoubted foundations on which our civil and natural knowledge is built; the benefit the understanding makes of them, is to draw from them conclusions, which may be as standing rules of knowledge, and consequently of practice. The mind often makes not that benefit it should of the information it receives from the accounts of civil or natural historians, in being too forward or too slow in making observations on the particular facts recorded in them.

There are those who are very assiduous in reading, and yet do not much advance their knowledge by it. They are delighted with the stories that are told, and perhaps can tell them again, for they make all they read nothing but history to themselves; but not reflecting on it, not making to themselves observations from what they read, they are very little improved by all that crowd of particulars, that either pass through, or lodge themselves in their understandings. They dream on in a constant course of reading and cramping themselves, but, not digesting any thing, it produces nothing but an heap of crudities.

If their memories retain well, one may ſay they have the materials of knowledge, but like thoſe for building, they are of no advantage, if there be no other uſe made of them but to let them lie heaped up together. Oppoſite to theſe there are others who loſe the improvement they ſhould make of matters of fact by a quite contrary conduct; they are apt to draw general concluſions, and raiſe axioms from every particular they may meet with. Theſe make as little true benefit of hiſtory as the other; nay, being of forward and active ſpirits, receive more harm by it; it being of worſe conſequence to ſteer one's thoughts by a wrong rule, than to have none at all, error doing to buſy men much more harm, than ignorance to the ſlow and ſluggiſh. Between theſe, thoſe ſeem to do beſt, who taking material and uſeful hints ſometimes from ſingle matters of fact, carry them in their minds to be judged of, by what they ſhall find in hiſtory to confirm or reverſe theſe imperfect obſervations; which may be eſtabliſhed into rules fit to be relied on, when they are juſtified by a ſufficient and wary induction of particulars. He that makes no ſuch reflections on what he reads, only loads his mind with a rhapſody of tales fit in winter-nights for the entertainment of others; and he that will improve every matter of fact into a maxim, will abound in contrary obſervations, that can be of no other uſe but to perplex and pudder him if he compares them, or elſe to miſguide him, if he gives himſelf up to the authority of that, which for its novelty, or for ſome other fancy, beſt pleaſes him.

§ 14. *Bias.*

Next to theſe, we may place thoſe who ſuffer their own natural tempers and paſſions they are poſſeſſed with to influence their judgments, eſpecially of men and things that may any way relate to their preſent circumſtances and intereſt. Truth is all ſimple, all pure, will bear no mixture of any thing elſe with it. It is rigid and inflexible to any bye intereſts; and ſo ſhould the underſtanding be, whoſe uſe and excellency

lies in conforming itself to it. To think of every thing just as it is in itself, is the proper business of the understanding, though it be not that which men always employ it to. This all men, at first hearing, allow is the right use every one should make of his understanding. Nobody will be at such an open defiance with common sense, as to profess that we should not endeavour to know, and think of things as they are in themselves, and yet there is nothing more frequent than to do the contrary; and men are apt to excuse themselves, and think they have reason to do so, if they have but a pretence that it is for God, or a good cause, that is in effect for themselves, their own persuasion or party; for to those in their turns the several sects of men, especially in matters of religion, entitle God and a good cause. But God requires not men to wrong or misuse their faculties for him, nor to lie to others or themselves for his sake; which they purposely do, who will not suffer their understandings to have right conceptions of the things proposed to them, and designedly restrain themselves from having just thoughts of every thing, as far as they are concerned to inquire. And as for a good cause, that needs not such ill helps; if it be good, truth will support it, and it has no need of fallacy or falsehood.

§ 15. *Arguments.*

VERY much of kin to this, is the hunting after *arguments* to make good one side of a question, and wholly to neglect and refuse those which favour the other side. What is this but wilfully to misguide the understanding, and is so far from giving truth its due value, that it wholly debases it; espouse opinions that best comport with their power, profit, or credit, and then seek arguments to support them? Truth light upon this way is of no more avail to us than error; for what is so taken up by us, may be false as well as true; and he has not done his duty who has thus stumbled upon truth in his way to preferment.

There is another but more innocent way of collecting arguments, very familiar among bookiſh men, which is to furniſh themſelves with the arguments they meet with pro and con in the queſtions they ſtudy. This helps them not to judge right, nor argue ſtrongly, but only to talk copiouſly on either ſide, without being ſteady and ſettled in their own judgments; for ſuch arguments gathered from other mens thoughts, floating only in the memory, are there ready indeed to ſupply copious talk with ſome appearance of reaſon, but are far from helping us to judge right. Such variety of arguments only diſtract the underſtanding that relies on them, unleſs it has gone farther than ſuch a ſuperficial way of examining: This is to quit truth for appearance, only to ſerve our vanity. The ſure and only way to get true knowledge, is to form in our minds clear ſettled notions of things, with names annexed to thoſe determined ideas. Theſe we are to conſider, and with their ſeveral relations and habitudes, and not amuſe ourſelves with floating names, and words of indetermined ſignification, which we can uſe in ſeveral ſenſes to ſerve a turn. It is in the perception of the habitudes and reſpects our ideas have one to another, that real knowledge conſiſts; and when a man once perceives how far they agree or diſagree one with another, he will be able to judge of what other people ſay, and will not need to be led by the arguments of others, which are many of them nothing but plauſible ſophiſtry. This will teach him to ſtate the queſtion right, and ſee whereon it turns; and thus he will ſtand upon his own legs, and know by his own underſtanding; whereas by collecting and learning arguments by heart, he will be but a retainer to others; and when any one queſtions the foundations they are built upon, he will be at a nonplus, and be fain to give up his implicit knowledge.

§ 16. *Haſte.*

Labour for labour-ſake is againſt nature. The underſtanding, as well as all the other faculties, chooſes

always the ſhorteſt way to its end, would preſently obtain the knowledge it is about, and then ſet upon ſome new inquiry. But this, whether lazineſs or haſte, often miſleads it, and makes it content itſelf with improper ways of ſearch, and ſuch as will not ſerve the turn; ſometimes it reſts upon teſtimony, when teſtimony of right has nothing to do, becauſe it is eaſier to believe than to be ſcientifically inſtructed; ſometimes it contents itſelf with one argument, and reſts ſatisfied with that, as it were a demonſtration; whereas the thing under proof is not capable of demonſtration, and therefore muſt be ſubmitted to the trial of probabilities, and all the material arguments pro and con be examined and brought to a balance. In ſome caſes the mind is determined by probable topics in inquiries, where demonſtration may be had. All theſe and ſeveral others, which lazineſs, impatience, cuſtom, and want of uſe and attention, lead men into, are miſapplications of the underſtanding in the ſearch of truth. In every queſtion the nature and manner of the proof it is capable of ſhould be conſidered, to make our inquiry ſuch as it ſhould be. This would ſave a great deal of frequently employed pains, and lead us ſooner to that diſcovery and poſſeſſion of truth we are capable of. The multiplying variety of arguments, eſpecially frivolous ones, ſuch as are all that are merely verbal, is not only loſt labour, but cumbers the memory to no purpoſe, and ſerves only to hinder it from ſeizing and holding of the truth in all thoſe caſes which are capable of demonſtration. In ſuch a way of proof the truth and certainty is ſeen, and the mind fully poſſeſſes itſelf of it; when in the other way of aſſent, it only hovers about it, is amuſed with uncertainties. In this ſuperficial way indeed the mind is capable of more variety of plauſible talk, but is not enlarged as it ſhould be in its knowledge. It is to this ſame haſte and impatience of the mind alſo, that a not due tracing of the arguments to their true foundation, is owing; men ſee a little, preſume a great deal, and ſo jump to the concluſion. This is a ſhort way to fancy

and conceit, and (if firmly embraced) to opiniatry, but is certainly the fartheſt way about to knowledge. For he that will know, muſt by the connection of the proofs ſee the truth, and the ground it ſtands on; and therefore, if he has for haſte ſkipped over what he ſhould have examined, he muſt begin and go over all again, or elſe he will never come to knowledge.

§ 17. *Deſultory.*

ANOTHER fault of as ill conſequence as this, which proceeds alſo from lazineſs with a mixture of vanity, is the ſkipping from one ſort of knowledge to another. Some mens tempers are quickly weary of any one thing; conſtancy and aſſiduity is what they cannot bear; the ſame ſtudy long continued in, is as intolerable to them, as the appearing long in the ſame clothes or faſhion is to a court-lady.

§ 18. *Smattering.*

OTHERS, that they may ſeem univerſally knowing, get a little ſmattering in every thing. Both theſe may fill their heads with ſuperficial notions of things, but are very much out of the way of attaining truth or knowledge.

§ 19. *Univerſality.*

I DO not here ſpeak againſt the taking a taſte of every ſort of knowledge; it is certainly very uſeful and neceſſary to form the mind; but then it muſt be done in a different way, and to a different end; not for talk and vanity, to fill the head with ſhreds of all kinds, that he who is poſſeſſed of ſuch a frippery, may be able to match the diſcourſes of all he ſhall meet with, as if nothing could come amiſs to him; and his head was ſo well ſtored a magazine, that nothing could be propoſed which he was not maſter of, and was readily furniſhed to entertain any one on. This is an excellency indeed, and a great one too, to have a real and true knowledge in all, or moſt of the objects of contemplation. But it is what the mind of one and the ſame man can hardly attain unto; and the inſtances are ſo few of thoſe who have in any meaſure approached towards it, that I know not whether they are to be propoſed as examples in the ordinary con-

duct of the underſtanding. For a man to underſtand fully the buſineſs of his particular calling in the commonwealth, and of religion, which is his calling as he is a man in the world, is uſually enough to take up his whole time; and there are few that inform themſelves in theſe, which is every man's proper and peculiar buſineſs, ſo to the bottom as they ſhould do. But though this be ſo, and there are very few men that extend their thoughts towards univerſal knowledge, yet I do not doubt, but if the right way were taken, and the methods of inquiry were ordered as they ſhould be, men of little buſineſs and great leiſure might go a great deal farther in it than is uſually done. To return to the buſineſs in hand, the end and uſe of a little inſight in thoſe parts of knowledge, which are not a man's proper buſineſs, is to accuſtom our minds to all ſorts of ideas, and the proper ways of examining their habitudes and relations. This gives the mind a freedom; and the exerciſing the underſtanding in the ſeveral ways of inquiry and reaſoning, which the moſt ſkilful have made uſe of, teaches the mind ſagacity and warineſs, and a ſuppleneſs to apply itſelf more cloſely and dexterouſly to the bents and turns of the matter in all its reſearches. Beſides, this univerſal taſte of all the ſciences, with an indifferency before the mind is poſſeſſed with any one in particular, and grown into love and admiration of what is made its darling, will prevent another evil very commonly to be obſerved in thoſe who have from the beginning been ſeaſoned only by one part of knowledge. Let a man be given up to the contemplation of one ſort of knowledge, and that will become every thing. The mind will take ſuch a tincture from a familiarity with that object, that every thing elſe, how remote ſoever, will be brought under the ſame view. A metaphyſician will bring ploughing and gardening immediately to abſtract notions; the hiſtory of nature ſhall ſignify nothing to him. An alchymiſt, on the contrary, ſhall reduce divinity to the maxims of his laboratory, explain morality by *ſal*, *ſulphur*, and *mercury*, and alle-

gorise the scripture itself, and the sacred mysteries thereof, into the philosopher's stone. And I heard once a man who had a more than ordinary excellency in music, seriously accommodate Moses's seven days of the first week to the notes of music, as if from thence had been taken the measure and method of the creation. It is of no small consequence to keep the mind from such a possession, which I think is best done by giving it a fair and equal view of the whole intellectual world, wherein it may see the order, rank, and beauty of the whole, and give a just allowance to the distinct provinces of the several sciences in the due order and usefulness of each of them.

If this be that which old men will not think necessary, nor be easily brought to, it is fit at least that it should be practised in the breeding of the young. The business of education, as I have already observed, is not, as I think, to make them perfect in any one of the sciences, but so to open and dispose their minds as may best make them capable of any, when they shall apply themselves to it. If men are for a long time accustomed only to one sort or method of thoughts, their minds grow stiff in it, and do not readily turn to another. It is therefore to give them this freedom that I think they should be made look into all sorts of knowledge, and exercise their understandings in so wide a variety and stock of knowledge. But I do not propose it as a variety and stock of knowledge, but a variety and freedom of thinking; as an increase of the powers and activity of the mind, not as an enlargement of its possessions.

§ 20. *Reading.*

This is that which I think great readers are apt to be mistaken in. Those who have read of every thing, are thought to understand every thing too; but it is not always so. Reading furnishes the mind only with materials of knowledge; it is thinking makes what we read ours. We are of the ruminating kind, and it is not enough to cram ourselves with a great load of collections; unless we chew them over again, they

will not give us strength and nourishment. There are indeed in some writers visible instances of deep thoughts, close and acute reasoning, and ideas well pursued. The light these would give would be of great use, if their reader would observe and imitate them; all the rest at best are but particulars fit to be turned into knowledge; but that can be done only by our own meditation, and examining the reach, force, and coherence of what is said; and then as far as we apprehend and see the connection of ideas, so far it is ours; without that, it is but so much loose matter floating in our brain. The memory may be stored, but the judgment is little better, and the stock of knowledge not increased, by being able to repeat what others have said, or produce the arguments we have found in them. Such a knowledge as this is but knowledge by hearsay, and the ostentation of it is at best but talking by rote, and very often upon weak and wrong principles; for all that is to be found in books, is not built upon true foundations, nor always rightly deduced from the principles it is pretended to be built on. Such an examen as is requisite to discover that, every reader's mind is not forward to make; especially in those who have given themselves up to a party, and only hunt for what they can scrape together, that may favour and support the tenets of it. Such men wilfully exclude themselves from truth, and from all true benefit to be received by reading. Others of more indifferency often want attention and industry. The mind is backward in itself to be at the pains to trace every argument to its original, and to see upon what basis it stands, and how firmly; but yet it is this that gives so much the advantage to one man more than another in reading. The mind should, by severe rules, be tied down to this at first uneasy task; use and exercise will give it facility; so that those who are accustomed to it, readily, as it were with one cast of the eye, take a view of the argument, and presently, in most cases, see where it bottoms. Those who have got this faculty, one may

say, have got the true key of books, and the clue to lead them, through the mizmaze of variety of opinions and authors, to truth and certainty. This young beginners should be entered in, and showed the use of, that they may profit by their reading. Those who are strangers to it will be apt to think it too great a clog in the way of mens studies, and they will suspect they shall meet but small progress, if, in the books they read, they must stand to examine and unravel every argument, and follow it step by step up to its original.

I answer, this is a good objection, and ought to weigh with those whose reading is designed for much talk and little knowledge, and I have nothing to say to it. But I am here inquiring into the conduct of the understanding in its progress towards knowledge; and to those who aim at that, I may say, that he, who fair and softly goes steadily forward in a course that points right, will sooner be at his journey's end, than he that runs after every one he meets, though he gallop all day full-speed.

To which let me add, that this way of thinking on, and profiting by what we read, will be a clog and rub to any one only in the beginning; when custom and exercise has made it familiar, it will be dispatched in most occasions, without resting or interruption in the course of our reading. The motions and views of a mind exercised that way, are wonderfully quick; and a man used to such sort of reflections, sees as much at one glimpse as would require a long discourse to lay before another, and make out in an entire and gradual deduction. Besides, that when the first difficulties are over, the delight and sensible advantage it brings, mightily encourages and enlivens the mind in reading, which without this is very improperly called study.

§ 21. *Intermediate Principles.*

As an help to this, I think it may be proposed, that, for the saving the long progression of the thoughts to remote and first principles in every case, the mind

ſhould provide it ſeveral ſtages; that is to ſay, intermediate principles, which it might have recourſe to in the examining thoſe poſitions that come in its way. Theſe, though they are not ſelf-evident principles, yet if they have been made out from them by a wary and unqueſtionable deduction, may be depended on as certain and infallible truths, and ſerve as unqueſtionable truths to prove other points depending on them by a nearer and ſhorter view than remote and general maxims. Theſe may ſerve as land-marks to ſhow what lies in the direct way of truth, or is quite beſides it. And thus mathematicians do, who do not in every new problem run it back to the firſt axioms, through all the whole train of intermediate propoſitions. Certain theorems, that they have ſettled to themſelves upon ſure demonſtration, ſerve to reſolve to them multitudes of propoſitions which depend on them, and are as firmly made out from thence, as if the mind went afreſh over every link of the whole chain that ties them to firſt ſelf-evident principles. Only in other ſciences great care is to be taken that they eſtabliſh thoſe intermediate principles with as much caution, exactneſs, and indifferency, as mathematicians uſe in the ſettling any of their great theorems. When this is not done, but men take up the principles in this or that ſcience upon credit, inclination, intereſt, &c. in haſte, without due examination, and moſt unqueſtionable proof, they lay a trap for themſelves, and as much as in them lies captivate their underſtandings to miſtake, falſehood, and error.

§ 22. *Partiality.*

As there is a partiality to opinions, which, as we have already obſerved, is apt to miſlead the underſtanding; ſo there is often a partiality to ſtudies, which is prejudicial alſo to knowledge and improvement. Thoſe ſciences, which men are particularly verſed in, they are apt to value and extol, as if that part of knowledge, which every one has acquainted himſelf with, were that alone which was worth the having, and all the reſt were idle, and empty amuſements, compara-

tively of no use or importance. This is the effect of ignorance and not knowledge, the being vainly puffed up with a flatulency, arising from a weak and narrow comprehension. It is not amiss that every one should relish the science that he has made his peculiar study; a view of its beauties, and a sense of its usefulness, carries a man on with the more delight and warmth in the pursuit and improvement of it; but the contempt of all other knowledge, as if it were nothing in comparison of law or physic, of astronomy or chemistry, or perhaps some yet meaner part of knowledge, wherein I have got some smattering, or am somewhat advanced, is not only the mark of a vain or little mind, but does this prejudice in the conduct of the understanding, that it coops it up within narrow bounds, and hinders it from looking abroad into other provinces of the intellectual world, more beautiful possibly, and more fruitful than that which it had till then laboured in; wherein it might find, besides new knowledge, ways or hints whereby it might be enabled the better to cultivate its own.

§ 23. *Theology.*

THERE is indeed one science (as they are now distinguished) incomparably above all the rest, where it is not by corruption narrowed into a trade or faction, for mean or ill ends, and secular interests; I mean theology, which containing the knowledge of God and his creatures, our duty to him and our fellow-creatures, and a view of our present and future state, is the comprehension of all other knowledge directed to its true end; *i. e.* the honour and veneration of the Creator, and the happiness of mankind. This is that noble study which is every man's duty, and every one that can be called a rational creature is capable of. The works of nature, and the words of revelation, display it to mankind in characters so large and visible, that those who are not quite blind may in them read and see the first principles and most necessary parts of it; and from thence, as they have time and industry, may be enabled to go on to the more abstruse parts of it, and penetrate into those infinite depths filled with the treasures of wisdom and

knowledge. This is that science which would truly enlarge mens minds, were it studied, or permitted to be studied every where, with that freedom, love of truth and charity which it teaches, and were not made, contrary to its nature, the occasion of strife, faction, malignity, and narrow impositions. I shall say no more here of this, but that it is undoubtedly a wrong use of my understanding, to make it the rule and measure of another man's; a use which it is neither fit for, nor capable of.

§ 24. *Partiality.*

This partiality, where it is not permitted an authority to render all other studies insignificant or contemptible, is often indulged so far as to be relied upon, and made use of in other parts of knowledge, to which it does not at all belong, and wherewith it has no manner of affinity. Some men have so used their heads to mathematical figures, that, giving a preference to the methods of that science, they introduce lines and diagrams into their study of divinity, or politic inquiries, as if nothing could be known without them; and others, accustomed to retired speculations, run natural philosophy into metaphysical notions, and the abstract generalities of logic; and how often may one meet with religion and morality treated of in the terms of the laboratory, and thought to be improved by the methods and notions of chemistry? But he that will take care of the conduct of his understanding to direct it right to the knowledge of things, must avoid those undue mixtures, and not, by a fondness for what he has found useful and necessary in one, transfer it to another science, where it serves only to perplex and confound the understanding. It is a certain truth, that *res nolunt male administrari*, it is no less certain *res nolunt male intelligi*. Things themselves are to be considered as they are in themselves, and then they will show us in what way they are to be understood; for to have right conceptions about them, we must bring our understandings to the inflexible natures, and unalterable relations of things, and not endeavour to bring things to any preconceived notions of our own.

There is another partiality very commonly observable in men of study, no less prejudicial nor ridiculous than the former; and that is a fantastical and wild-attributing all knowledge to the ancients alone, or to the moderns. This raving upon antiquity in matter of poetry, Horace has wittily described and exposed in one of his satires. The same sort of madness may be found in reference to all the other sciences. Some will not admit an opinion not authorised by men of old, who were then all giants in knowledge. Nothing is to be put into the treasury of truth or knowledge, which has not the stamp of Greece or Rome upon it; and, since their days, will scarce allow that men have been able to see, think or write. Others with a like extravagancy, contemn all that the ancients have left us, and being taken with the modern inventions and discoveries, lay by all that went before, as if whatever is called old must have the decay of time upon it, and truth too were liable to mould and rottenness. Men, I think, have been much the same for natural endowments in all times. Fashion, discipline and education, have put eminent differences in the ages of several countries, and made one generation much differ from another in arts and sciences; but truth is always the same; time alters it not, nor is it the better or worse for being of ancient or modern tradition. Many were eminent in former ages of the world for their discovery and delivery of it; but though the knowledge they have left us be worth our study, yet they exhausted not all its treasure; they left a great deal for the industry and sagacity of after ages, and so shall we. That was once new to them, which any one now receives with veneration for its antiquity, nor was it the worse for appearing as a novelty; and that which is now embraced for its newness, will to posterity be old, but not thereby be less true or less genuine. There is no occasion on this account to oppose the ancients and the moderns to one another, or to be squeamish on either side. He that wisely conducts his mind in the pursuit of knowledge, will gather what lights, and get what helps he can from either of them, from whom they are

best to be had, without adoring the errors, or rejecting the truths, which he may find mingled in them.

Another partiality may be observed, in some to vulgar, in others to heterodox tenets: Some are apt to conclude, that what is the common opinion cannot but be true; so many mens eyes they think cannot but see right; so many mens understandings of all sorts cannot be deceived, and therefore will not venture to look beyond the received notions of the place and age, nor have so presumptuous a thought as to be wiser than their neighbours: They are content to go with the crowd, and so go easily, which they think is going right, or at least serves them as well. But however *vox populi vox Dei* has prevailed as a maxim, yet I do not remember wherever God delivered his oracles by the multitude, or nature truths by the herd. On the other side, some fly all common opinions as either false or frivolous. The title of many-headed beast is a sufficient reason to them to conclude, that no truths of weight or consequence can be lodged there. Vulgar opinions are suited to vulgar capacities, and adapted to the ends of those that govern. He that will know the truth of things, must leave the common and beaten track, which none but weak and servile minds are satisfied to trudge along continually in. Such nice palates relish nothing but strange notions quite out of the way: Whatever is commonly received, has the mark of the beast on it; and they think it a leslening to them to hearken to it, or receive it; their mind runs only after paradoxes; these they seek, these they embrace, these alone they vent, and so, as they think, distinguish themselves from the vulgar; but common or uncommon are not the marks to distinguish truth or falsehood, and therefore should not be any bias to us in our inquiries. We should not judge of things by mens opinions, but of opinions by things. The multitude reason but ill, and therefore may be well suspected, and cannot be relied on, nor should be followed as a sure guide; but philosophers, who have quitted the orthodoxy of the community, and the popular doctrines of their countries, have fallen into as extrava-

gant and as absurd opinions as ever common reception countenanced. It would be madness to refuse to breathe the common air, or quench one's thirst with water, because the rabble use them to these purposes; and if there are conveniencies of life which common use reaches not, it is not reason to reject them, because they are not grown into the ordinary fashion of the country, and every villager doth not know them.

Truth, whether in or out of fashion, is the measure of knowledge, and the business of the understanding; whatsoever is besides that, however authorised by consent, or recommended by rarity, is nothing but ignorance, or something worse.

Another sort of partiality there is, whereby men impose upon themselves, and by it make their reading little useful to themselves; I mean the making use of the opinions of writers, and laying stress upon their authorities, wherever they find them to favour their own opinions.

There is nothing almost has done more harm to men dedicated to letters, than giving the name of study to reading, and making a man of great reading to be the same with a man of great knowledge, or at least to be a title of honour. All that can be recorded in writing, are only facts or reasonings. Facts are of three sorts:

1. Merely of natural agents, observable in the ordinary operations of bodies one upon another, whether in the visible course of things left to themselves, or in experiments made by men, applying agents and patients to one another after a peculiar and artificial manner.

2. Of voluntary agents, more especially the actions of men in society, which makes civil and moral history.

3. Of opinions.

In these three consists, as it seems to me, that which commonly has the name of learning, to which perhaps some may add a distinct head of critical writings, which indeed at bottom is nothing but matter of fact, and resolves itself into this, that such a man, or set of men,

used such a word or phrase in such a sense, *i. e.* that they made such sounds the marks of such ideas.

Under reasonings I comprehend all the discoveries of general truths made by human reason, whether found by intuition, demonstration, or probable deductions: And this is that which is, if not alone knowledge (because the truth or probability of particular propositions may be known too), yet is, as may be supposed, most properly the business of those who pretend to improve their understandings, and make themselves knowing by reading.

Books and reading are looked upon to be the great helps of the understanding, and instruments of knowledge, as it must be allowed that they are; and yet I beg leave to question whether these do not prove an hinderance to many, and keep several bookish men from attaining to solid and true knowledge. This, I think, I may be permitted to say, that there is no part wherein the understanding needs a more careful and wary conduct, than in the use of books; without which they will prove rather innocent amusements than profitable employments of our time, and bring but small additions to our knowledge.

There is not seldom to be found even amongst those who aim at knowledge, who with an unwearied industry employ their whole time in books, who scarce allow themselves time to eat or sleep, but read, and read, and read on, but yet make no great advances in real knowledge, though there be no defect in their intellectual faculties, to which their little progress can be imputed. The mistake here is, that it is usually supposed, that by reading, the author's knowledge is transfused into the reader's understanding; and so it is, but not by bare reading, but by reading and understanding what he writ; whereby I mean, not barely comprehending what is affirmed or denied in each proposition, (though that great readers do not always think themselves concerned precisely to do) but to see and follow the train of his reasonings, observe the strength and clearness of their connection, and examine upon what they bottom.

Without this a man may read the discourses of a very rational author, writ in a language, and in propositions that he very well understands, and yet acquire not one jot of his knowledge, which consisting only in the perceived, certain, or probable connection of the ideas made use of in his reasonings, the reader's knowledge is no farther increased than he perceives that; so much as he sees of this connection, so much he knows of the truth or probability of that author's opinions.

All that he relies on without this perception, he takes upon trust upon the author's credit, without any knowledge of it at all. This makes me not at all wonder to see some men so abound in citations, and build so much upon authorities, it being the sole foundation on which they bottom most of their own tenets; so that in effect they have but a second-hand, or implicit knowledge, *i. e.* are in the right, if such an one, from whom they borrowed it, were in the right in that opinion which they took from him, which indeed is no knowledge at all. Writers of this or former ages may be good witnesses of matters of fact which they deliver, which we may do well to take upon their authority; but their credit can go no farther than this; it cannot at all affect the truth and falsehood of opinions, which have no other sort of trial but reason and proof, which they themselves made use of to make themselves knowing, and so must others too that will partake in their knowledge. Indeed it is an advantage that they have been at the pains to find out the proofs, and lay them in that order that may show the truth or probability of their conclusions; and for this we owe them great acknowledgments for saving us the pains in searching out those proofs which they have collected for us, and which possibly, after all our pains, we might not have found, nor been able to have set them in so good a light as that which they left them us in. Upon this account we are mightily beholden to judicious writers of all ages, for those discoveries and discourses they have left behind them for our instruction, if we know how to make a right use of them; which is not to run them over in an hasty perusal, and perhaps

lodge their opinions, or some remarkable passages in our memories, but to enter into their reasonings, examine their proofs, and then judge of the truth or falsehood, probability or improbability of what they advance; not by any opinion we have entertained of the author, but by the evidence he produces, and the conviction he affords us, drawn from things themselves. Knowing is seeing; and if it be so, it is madness to persuade ourselves that we do so by another man's eyes, let him use ever so many words to tell us that what he asserts is very visible. Till we ourselves see it with our own eyes, and perceive it by our own understandings, we are as much in the dark, and as void of knowledge as before, let us believe any learned author as much as we will.

Euclid and Archimedes are allowed to be knowing, and to have demonstrated what they say; and yet whoever shall read over their writings without perceiving the connection of their proofs, and seeing what they show, though he may understand all their words, yet he is not the more knowing: He may believe indeed, but does not know what they say, and so is not advanced one jot in mathematical knowledge by all his reading of those approved mathematicians.

§ 25. *Haste.*

The eagerness and strong bent of the mind after knowledge, if not warily regulated, is often an hinderance to it. It still presses into farther discoveries and new objects, and catches at the variety of knowledge, and therefore often stays not long enough on what is before it, to look into it as it should, for haste to pursue what is yet out of sight. He that rides post through a country, may be able, from the transient view, to tell how in general the parts lie, and may be able to give some loose description of here a mountain, and there a plain, here a morass, and there a river; woodland in one part, and savannas in another. Such superficial ideas and observations as these he may collect in galloping over it; but the more useful observations of the soil, plants, animals and inhabitants, with their several sorts and properties, must necessarily escape him; and it is seldom men ever

discover the rich mines, without some digging. Nature commonly lodges her treasure and jewels in rocky ground. If the matter be knotty, and the sense lies deep, the mind must stop and buckle to it, and stick upon it with labour and thought, and close contemplation, and not leave it till it has mastered the difficulty, and got possession of truth: But here care must be taken to avoid the other extreme; a man must not stick at every useless nicety, and expect mysteries of science in every trivial question or scruple that he may raise. He that will stand to pick up and examine every pebble that comes in his way, is as unlikely to return enriched and laden with jewels, as the other that travelled full speed. Truths are not the better nor the worse for their obviousness or difficulty, but their value is to be measured by their usefulness and tendency. Insignificant observations should not take up any of our minutes, and those that enlarge our view, and give light towards farther and useful discoveries, should not be neglected, though they stop our course, and spend some of our time in a fixed attention.

There is another haste that does often, and will mislead the mind, if it be left to itself and its own conduct. The understanding is naturally forward, not only to learn its knowledge by variety (which makes it skip over one to get speedily to another part of knowledge), but also eager to enlarge its views, by running too fast into general observations and conclusions, without a due examination of particulars enough whereon to found those general axioms. This seems to enlarge their stock, but it is of fancies, not realities. Such theories, built upon narrow foundations, stand but weakly, and if they fall not of themselves, are at least very hardly to be supported against the assaults of opposition; and thus men being too hasty to erect to themselves general notions and ill-grounded theories, find themselves deceived in their stock of knowledge, when they come to examine their hastily assumed maxims themselves, or to have them attacked by others. General observations drawn from particulars, are the jewels of knowledge, comprehending great store in a little room; but they are therefore to be

made with the greater care and caution, leſt, if we take counterfeit for true, our loſs and ſhame be the greater when our ſtock comes to a ſevere ſcrutiny. One or two particulars may ſuggeſt hints of inquiry, and they do well to take thoſe hints; but if they turn them into concluſions, and make them preſently general rules, they are forward indeed, but it is only to impoſe on themſelves by propoſitions aſſumed for truths without ſufficient warrant. To make ſuch obſervations, is, as has been already remarked, to make the head a magazine of materials, which can hardly be called knowledge, or at leaſt it is but like a collection of lumber not reduced to uſe or order; and he that makes every thing an obſervation, has the ſame uſeleſs plenty, and much more falſehood mixed with it. The extremes on both ſides are to be avoided, and he will be able to give the beſt account of his ſtudies who keeps his underſtanding in the right mean between them.

§ 26. *Anticipation.*

WHETHER it be a love of that which brings the firſt light and information to their minds, and want of vigour and induſtry to inquire, or elſe that men content themſelves with any appearance of knowledge, right or wrong, which, when they have once got, they will hold faſt; this is viſible, that many men give themſelves up to the firſt anticipations of their minds, and are very tenacious of the opinions that firſt poſſeſs them; they are often as fond of their firſt conceptions as of their firſt born, and will by no means recede from the judgment they have once made, or any conjecture or conceit which they have once entertained. This is a fault in the conduct of the underſtanding, ſince this firmneſs, or rather ſtiffneſs of the mind, is not from an adherence to truth, but a ſubmiſſion to prejudice. It is an unreaſonable homage paid to prepoſſeſſion, whereby we ſhow a reverence not to (what we pretend to ſeek) truth, but what by hap-hazard we chance to light on, be it what it will. This is viſibly a prepoſterous uſe of our faculties, and is a downright proſtituting of the mind to reſign it thus, and put it under the power of the firſt comer.

This can never be allowed, or ought to be followed as a right way to knowledge, till the understanding (whose business it is to conform itself to what it finds on the objects without) can by its own opiniatry change that, and make the unalterable nature of things comply with its own hasty determinations, which will never be. Whatever we fancy, things keep their course; and their habitudes, correspondencies and relations, keep the same to one another.

§ 27. *Resignation.*

CONTRARY to these, but by a like dangerous excess on the other side, are those who always resign their judgment to the last man they heard or read. Truth never sinks into these mens minds, nor gives any tincture to them, but cameleon-like, they take the colour of what is laid before them, and as soon lose and resign it to the next that happens to come in their way. The order wherein opinions are proposed or received by us, is no rule of their rectitude, nor ought to be a cause of their preference. First or last in this case, is the effect of chance, and not the measure of truth or falsehood. This every one must confess, and therefore should, in the pursuit of truth, keep his mind free from the influence of any such accidents. A man may as reasonably draw cuts for his tenets, regulate his persuasion by the cast of a die, as take it up for its novelty, or retain it because it had his first assent, and he was never of another mind. Well-weighed reasons are to determine the judgment; those the mind should be always ready to hearken and submit to, and by their testimony and suffrage entertain or reject any tenet indifferently, whether it be a perfect stranger or an old acquaintance.

§ 28. *Practice.*

THOUGH the faculties of the mind are improved by exercise, yet they must not be put to a stress beyond their strength. *Quid valeant humeri, quid ferre recusent*, must be made the measure of every one's understanding, who has a desire not only to perform well, but to keep up the vigour of his faculties, and not to baulk his understanding by what is too hard for it. The mind, by being en-

gaged in a task beyond its strength, like the body, strained by lifting at a weight too heavy, has often its force broken, and thereby gets an unaptness or an aversion to any vigorous attempt ever after. A sinew cracked seldom recovers its former strength, or at least the tenderness of the sprain remains a good while after, and the memory of it longer, and leaves a lasting caution in the man not to put the part quickly again to any robust employment. So it fares in the mind once jaded by an attempt above its power; it either is disabled for the future, or else checks at any vigorous undertaking ever after, at least is very hardly brought to exert its force again on any subject that requires thought and meditation. The understanding should be brought to the difficult and knotty parts of knowledge, that try the strength of thought; and a full bent of the mind, by insensible degrees, and in such a gradual proceeding, nothing is too hard for it. Nor let it be objected, that such a slow progress will never reach the extent of some sciences. It is not to be imagined how far constancy will carry a man; however, it is better walking slowly in a rugged way, than to break a leg and be a cripple. He that begins with the calf may carry the ox; but he that will at first go to take up an ox, may so disable himself, as not be able to lift a calf after that. When the mind by insensible degrees has brought itself to attention and close thinking, it will be able to cope with difficulties, and master them without any prejudice to itself, and then it may go on roundly; every abstruse problem, every intricate question, will not baffle, discourage, or break it. But though putting the mind unprepared upon an unusual stress, that may discourage or damp it for the future, ought to be avoided, yet this must not run it, by an over-great shyness of difficulties, into a lazy sauntering about ordinary and obvious things, that demand no thought or application; this debases and enervates the understanding, makes it weak and unfit for labour. This is a sort of hovering about the surface of things, without any insight into them, or penetration; and when the mind has been once habituated to this lazy recumbency and satisfaction on

the obvious ſurface of things, it is in danger to reſt ſatisfied there, and go no deeper, ſince it cannot do it without pains and digging. He that has for ſome time accuſtomed himſelf to take up with what eaſily offers itſelf at firſt view, has reaſon to fear he ſhall never reconcile himſelf to the fatigue of turning and tumbling of things in his mind, to diſcover their more retired and more valuable ſecrets.

It is not ſtrange that methods of learning, which ſcholars have been accuſtomed to in their beginning and entrance upon the ſciences, ſhould influence them all their lives, and be ſettled in their minds by an over-ruling reverence, eſpecially if they be ſuch as univerſal uſe has eſtabliſhed. Learners muſt at firſt be believers, and their maſters rules having been once made axioms to them, it is no wonder they ſhould keep that dignity, and by the authority they have once got, miſlead thoſe who think it ſufficient to excuſe them, if they go out of their way in a well-beaten track.

§ 29. *Words.*

I HAVE copiouſly enough ſpoken of the abuſe of words in another place, and therefore ſhall, upon this reflection that the ſciences are full of them, warn thoſe that would conduct their underſtandings right, not to take any term, howſoever authoriſed by the language of the ſchools, to ſtand for any thing till they have an idea of it. A word may be of frequent uſe and great credit with ſeveral authors, and be by them made uſe of as if it ſtood for ſome real being; but yet if he that reads cannot frame any diſtinct idea of that being, it is certain to him a mere empty ſound without a meaning, and he learns no more by all that is ſaid of it, or attributed to it, than if it were affirmed only of that bare empty ſound. They who would advance in knowledge, and not deceive and ſwell themſelves with a little articulated air, ſhould lay down this as a fundamental rule, not to take words for things, nor ſuppoſe that names in books ſignify real entities in nature, till they can frame clear and diſtinct ideas of thoſe entities. It will not perhaps be allowed, if I ſhould ſet down *ſubſtantial forms* and *intentional ſpecies*, as ſuch that may

justly be suspected to be of this kind of insignificant terms; but this I am sure, to one that can form no determined ideas of what they stand for, they signify nothing at all, and all that he thinks he knows about them is to him so much knowledge about nothing, and amounts at most but to a learned ignorance. It is not without all reason supposed, that there are many such empty terms to be found in some learned writers to which they had recourse to etch out their systems where their understandings could not furnish them with conceptions from things; but yet I believe the supposing of some realities in nature, answering those and the like words, have much perplexed some, and quite misled others in the study of nature. That which in any discourse signifies, *I know not what*, should be considered *I know not when*. Where men have any conceptions, they can, if they are ever so abstruse or abstracted, explain them, and the terms they use for them; for our conceptions being nothing but ideas, which are all made up of simple ones, if they cannot give us the ideas their words stand for, it is plain they have none. To what purpose can it be to hunt after his conceptions, who has none, or none distinct? He that knew not what he himself meant by a learned term, cannot make us know any thing by his use of it, let us beat our heads about it ever so long. Whether we are able to comprehend all the operations of nature, and the manners of them, it matters not to inquire; but this is certain, that we can comprehend no more of them than we can directly conceive, and therefore to obtrude terms where we have no distinct conceptions, as if they did contain, or rather conceal something, is but an artifice of learned vanity, to cover a defect in an hypothesis or our understandings. Words are not made to conceal, but to declare and show something; where they are, by those who pretend to instruct, otherwise used, they conceal indeed something; but that which they conceal is nothing but the ignorance, error, or sophistry of the talker, for there is, in truth, nothing else under them.

§ 30. *Wandering.*

THAT there is constant succession and flux of ideas in

our minds, I have obſerved in the former part of this eſſay, and every one may take notice of it in himſelf. This, I ſuppoſe, may deſerve ſome part of our care in the conduct of our underſtandings; and I think it may be of great advantage, if we can by uſe get that power over our minds, as to be able to direct that train of ideas, that ſo, ſince there will new ones perpetually come into our thoughts by a conſtant ſucceſſion, we may be able by choice ſo to direct them, that none may come in view but ſuch as are pertinent to our preſent inquiry, and in ſuch order as may be moſt uſeful to the diſcovery we are upon; or at leaſt, if ſome foreign and unſought ideas will offer themſelves, that yet we might be able to reject them, and keep them from taking off our minds from its preſent purſuit, and hinder them from running away with our thoughts quite from the ſubject in hand. This is not, I ſuſpect, ſo eaſy to be done, as perhaps may be imagined; and yet, for ought I know, this may be, if not the chief, yet one of the great differences that carry ſome men in their reaſoning ſo far beyond others, where they ſeem to be naturally of equal parts. A proper and effectual remedy for this wandering of thoughts I would be glad to find. He that ſhall propoſe ſuch an one, would do great ſervice to the ſtudious and contemplative part of mankind, and perhaps help unthinking men to become thinking. I muſt acknowledge, that hitherto I have diſcovered no other way to keep our thoughts cloſe to their buſineſs, but the endeavouring as much as we can, and by frequent attention and application, getting the habit of attention and application. He that will obſerve children, will find, that even when they endeavour their utmoſt, they cannot keep their minds from ſtraggling. The way to cure it, I am ſatisfied, is not angry chiding or beating, for that preſently fills their heads with all the ideas that fear, dread, or confuſion can offer to them. To bring back gently their wandering thoughts, by leading them into the path, and going before them in the train they ſhould purſue, without any rebuke, or ſo much as taking notice (where it can be avoided) of their roving, I ſup-

poſe would ſooner reconcile and inure them to attention, than all thoſe rougher methods which more diſtract their thought, and, hindering the application they would promote, introduce a contrary habit.

§ 31. *Diſtinction.*

DISTINCTION and diviſion are (if I miſtake not the import of the words) very different things, the one being the perception of a difference that nature has placed in things, the other our making a diviſion where there is yet none; at leaſt if I may be permitted to conſider them in this ſenſe, I think I may ſay of them, that one of them is the moſt neceſſary and conducive to true knowledge that can be; the other, when too much made uſe of, ſerves only to puzzle and confound the underſtanding. To obſerve every the leaſt difference that is in things, argues a quick and clear ſight, and this keeps the underſtanding ſteady and right in its way to knowledge. But though it be uſeful to diſcern every variety that is to be found in nature, yet it is not convenient to conſider every difference that is in things, and divide them into diſtinct claſſes under every ſuch difference. This will run us, if followed, into particulars (for every individual has ſomething that differences it from another), and we ſhall be able to eſtabliſh no general truths, or elſe at leaſt ſhall be apt to perplex the mind about them. The collection of ſeveral things into ſeveral claſſes, gives the mind more general and larger views; but we muſt take care to unite them only in that, and ſo far as they do agree, for ſo far they may be united under the conſideration; for entity itſelf, that comprehends all things, as general as it is, may afford us clear and rational conceptions. If we would weigh and keep in our minds what it is we are conſidering, that would beſt inſtruct us when we ſhould or ſhould not branch into farther diſtinctions, which are to be taken only from a due contemplation of things, to which there is nothing more oppoſite than the art of verbal diſtinctions, made at pleaſure in learned and arbitrarily invented terms, to be applied at a venture, without comprehending or conveying any diſtinct notions, and ſo altogether fitted to artificial talk,

or empty noise in dispute, without any clearing of difficulties, or advance in knowledge. Whatsoever subject we examine and would get knowledge in, we should, I think, make as general and as large as it will bear; nor can there be any danger of this, if the idea of it be settled and determined; for if that be so, we shall easily distinguish it from any other idea, though comprehended under the same name; for it is to fence against the entanglements of equivocal words, and the great art of sophistry which lies in them, that distinctions have been multiplied, and their use thought necessary. But had every distinct abstract idea a distinct known name, there would be little need of these multiplied scholastic distinctions, though there would be nevertheless as much need still of the mind's observing the differences that are in things, and discriminating them thereby one from another. It is not, therefore, the right way to knowledge, to hunt after and fill the head with abundance of artificial and scholastic distinctions, wherewith learned mens writings are often filled: We sometimes find what they treat of so divided and subdivided, that the mind of the most attentive reader loses the sight of it, as it is more than probable the writer himself did; for in things crumbled into dust, it is in vain to affect or pretend order, or expect clearness. To avoid confusion by too few or too many divisions, is a great skill in thinking as well as writing, which is but the copying our thoughts; but what are the boundaries of the mean between the two vicious excesses on both hands, I think is hard to set down in words: Clear and distinct ideas is all that I yet know able to regulate it. But as to verbal distinctions received and applied to common terms, *i. e.* equivocal words, they are more properly, I think, the business of criticisms and dictionaries than of real knowledge and philosophy, since they, for the most part, explain the meaning of words, and give us their several significations. The dexterous management of terms, and being able to *fend* and *prove* with them, I know has and does pass in the world for a great part of learning; but it is learning distinct from knowledge; for knowledge consists only in perceiving the habitudes and rela-

tions of ideas one to another, which is done without words; the intervention of a sound helps nothing to it. And hence we see that there is least use of distinctions where there is most knowledge; I mean in mathematics, where men have determined ideas with known names to them; and so there being no room for equivocations, there is no need of distinctions. In arguing, the opponent uses as comprehensive and equivocal terms as he can, to involve his adversary in the doubtfulness of his expressions: This is expected, and therefore the answerer on his side makes it his play to distinguish as much as he can, and thinks he can never do it too much, nor can he indeed in that way, wherein victory may be had without truth and without knowledge. This seems to me to be the art of disputing: Use your words as captiously as you can in your arguing on one side, and apply distinctions as much as you can on the other side to every term, to nonplus your opponent; so that in this sort of scholarship, there being no bounds set to distinguishing, some men have thought all acuteness to have lain in it; and therefore in all they have read or thought on, their great business has been to amuse themselves with distinctions, and multiply to themselves divisions, at least, more than the nature of the thing required. There seems to me, as I said, to be no other rule for this, but a due and right consideration of things as they are in themselves. He that has settled in his mind determined ideas, with names affixed to them, will be able both to discern their differences one from another, which is really distinguishing; and, where the penury of words affords not terms answering every distinct idea, will be able to apply proper distinguishing terms to the comprehensive and equivocal names he is forced to make use of. This is all the need I know of distinguishing terms; and in such verbal distinctions, each term of the distinction, joined to that whose signification it distinguishes, is but a distinct name for a distinct idea. Where they are so, and men have clear and distinct conceptions that answer their verbal distinctions, they are right, and are pertinent as far as they serve to clear

any thing in the subject under consideration; and this is that which seems to me the proper and only measure of distinctions and divisions; which he that will conduct his understanding right, must not look for in the acuteness of invention, nor the authority of writers, but will find only in the consideration of things themselves, whether they are led into it by their own meditations, or the information of books.

An aptness to jumble things together, wherein can be found any likeness, is a fault in the understanding on the other side, which will not fail to mislead it, and by thus lumping of things, hinder the mind from distinct and accurate conceptions of them.

§ 32. *Similes.*

To which let me here add another near of kin to this, at least in name, and that is letting the mind, upon the suggestion of any new notion, run immediately after similes to make it the clearer to itself; which, though it may be a good way, and useful in the explaining our thoughts to others, yet it is by no means a right method to settle true notions of any thing in ourselves, because similes always fail in some part, and come short of that exactness which our conceptions should have to things, if we would think aright. This indeed makes men plausible talkers; for those are always most acceptable in discourse who have the way to let their thoughts into other mens minds with the greatest ease and facility; whether those thoughts are well formed and correspond with things, matters not; few men care to be instructed but at an easy rate. They, who in their discourse strike the fancy, and take the hearers conceptions along with them as fast as their words flow, are the applauded talkers, and go for the only men of clear thoughts. Nothing contributes so much to this as similes, whereby men think they themselves understand better, because they are the better understood. But it is one thing to think aright, and another thing to know the right way to lay our thoughts before others with advantage and clearness, be they right or wrong. Well chosen similes, metaphors, and allegories, with method

and order, do this the best of any thing, because being taken from objects already known, and familiar to the understanding, they are conceived as fast as spoken; and the correspondence being concluded, the thing they are brought to explain and elucidate is thought to be understood too. Thus fancy passes for knowledge, and what is prettily said is mistaken for solid. I say not this to decry metaphor, or with design to take away that ornament of speech; my business here is not with rhetoricians and orators, but with philosophers and lovers of truth; to whom I would beg leave to give this one rule whereby to try whether, in the application of their thoughts to any thing for the improvement of their knowledge, they do in truth comprehend the matter before them really such as it is in itself. The way to discover this is to observe, whether in the laying it before themselves or others, they make use only of borrowed representations and ideas foreign to the things which are applied to it by way of accommodation, as bearing some proportion or imagined likeness to the subject under consideration. Figured and metaphorical expressions do well to illustrate more abstruse and unfamiliar ideas which the mind is not yet thoroughly accustomed to; but then they must be made use of to illustrate ideas that we already have, not to paint to us those which we yet have not. Such borrowed and allusive ideas may follow real and solid truth, to set it off when found, but must by no means be set in its place, and taken for it. If all our search has yet reached no farther than simile or metaphor, we may assure ourselves we rather fancy than know, and are not yet penetrated into the inside and reality of the thing, be it what it will, but content ourselves with what our imaginations, not things themselves, furnish us with.

§ 33. *Assent.*

In the whole conduct of the understanding, there is nothing of more moment than to know when and where, and how far to give assent, and possibly there is nothing harder. It is very easily said, and nobody questions it, that giving and withholding our assent, and the degrees

of it, should be regulated by the evidence which things carry with them; and yet we see men are not the better for this rule; some firmly embrace doctrines upon slight grounds, some upon no grounds, and some contrary to appearance: Some admit of certainty, and are not to be moved in what they hold; others waver in every thing; and there want not those that reject all as uncertain. What then shall a novice, an inquirer, a stranger do in the case? I answer, use his eyes. There is a correspondence in things, an agreement and disagreement in ideas, discernible in very different degrees, and there are eyes in men to see them if they please, only their eyes may be dimmed or dazzled, and the discerning sight in them impaired or lost. Interest and passion dazzles; the custom of arguing on any side, even against our persuasions, dims the understanding, and makes it by degrees lose the faculty of discerning clearly between truth and falsehood, and so of adhering to the right side. It is not safe to play with error, and dress it up to ourselves or others in the shape of truth. The mind by degrees loses its natural relish of real solid truth, is reconciled insensibly to any thing that can be dressed up into any faint appearance of it; and if the fancy be allowed the place of judgment at first in sport, it afterwards comes by use to usurp it, and what is recommended by this flatterer (that studies but to please) is received for good. There are so many ways of fallacy, such arts of giving colours, appearances, and resemblances by this court-dresser, the fancy, that he, who is not wary to admit nothing but truth itself, very careful not to make his mind subservient to any thing else, cannot but be caught. He that has a mind to believe has half assented already; and he that by often arguing against his own sense, imposes falsehoods on others, is not far from believing himself. This takes away the great distance there is betwixt truth and falsehood; it brings them almost together, and makes it no great odds, in things that approach so near, which you take; and when things are brought to that pass,

passion or interest, &c. easily, and without being perceived, determine which shall be the right.

§ 34. *Indifferency.*

I HAVE said above, that we should keep a perfect indifferency for all opinions, not wish any of them true, or try to make them appear so; but being indifferent, receive and embrace them according as evidence, and that alone gives the attestation of truth. They that do thus, *i. e.* keep their mind indifferent to opinions, to be determined only by evidence, will always find the understanding has perception enough to distinguish between evidence or no evidence, betwixt plain and doubtful; and if they neither give nor refuse their assent but by that measure, they will be safe in the opinions they have, which being perhaps but few, this caution will have also this good in it, that it will put them upon considering, and teach them the necessity of examining more than they do; without which, the mind is but a receptacle of inconsistencies, not the storehouse of truths. They that do not keep up this indifferency in themselves for all but truth, not supposed, but evidenced in themselves, put coloured spectacles before their eyes, and look on things through false glasses, and then think themselves excused in following the false appearances which they themselves put upon them. I do not expect that by this way the assent should in every one be proportioned to the grounds and clearness wherewith every truth is capable to be made out, or that men should be perfectly kept from error; that is more than human nature can by any means be advanced to: I aim at no such unattainable privilege; I am only speaking of what they should do, who would deal fairly with their own minds, and make a right use of their faculties in the pursuit of truth; we fail them a great deal more than they fail us. It is mismanagement more than want of abilities that men have reason to complain of, and which they actually do complain of, in those that differ from them. He that by an indifferency for all but truth, suffers not his assent to go faster than his evidence, nor beyond it, will learn to examine, and exa-

mine fairly instead of presuming, and nobody will be at a loss or in danger, for want of embracing those truths which are necessary in his station and circumstances. In any other way but this, all the world are born to orthodoxy; they imbibe at first the allowed opinions of their country and party, and so never questioning their truth, not one of an hundred ever examines; they are applauded for presuming they are in the right. He that considers, is a foe to orthodoxy, because possibly he may deviate from some of the received doctrines there; and thus men, without any industry or acquisition of their own, inherit local truths (for it is not the same every where), and are inured to assent without evidence. This influences farther than is thought; for what one of an hundred of the zealous bigots in all parties ever examined the tenets he is so stiff in, or ever thought it his business or duty so to do? It is suspected of lukewarmness to suppose it necessary, and a tendency to apostacy to go about it; and if a man can bring his mind once to be positive and fierce for positions, whose evidence he has never once examined, and that in matters of greatest concernment to him, what shall keep him from this short and easy way of being in the right, in cases of less moment? Thus we are taught to clothe our minds, as we do our bodies, after the fashion in vogue, and it is accounted fantasticalness, or something worse, not to do so. This custom (which who dares oppose) makes the short-sighted bigots, and the warier sceptics, as far as it prevails; and those that break from it are in danger of heresy; for taking the whole world, how much of it doth truth and orthodoxy possess together? though it is by the last alone (which has the good luck to be every where) that error and heresy are judged of; for argument and evidence signify nothing in the case, and excuse no where, but are sure to be borne down in all societies by the infallible orthodoxy of the place. Whether this be the way to truth and right assent, let the opinions that take place and prescribe in the several habitable parts of the earth, declare. I never saw any reason yet why truth might not be trusted to its own evidence: I am sure if that be not able to sup-

port it, there is no fence against error, and then truth and falsehood are but names that stand for the same things. Evidence, therefore, is that by which alone every man is (and should be) taught to regulate his assent, who is then, and then only, in the right way when he follows it.

Men deficient in knowledge are usually in one of these three states; either wholly ignorant, or as doubting of some proposition they have either embraced formerly, or at present are inclined to; or, lastly, they do with assurance hold and profess without ever having examined, and being convinced by well-grounded arguments.

The first of these are in the best state of the three, by having their minds yet in their perfect freedom and indifferency, the likelier to pursue truth the better, having no bias yet clapped on to mislead them.

§ 35.

For ignorance, with an indifferency for truth, is nearer to it than opinion with ungrounded inclination, which is the great source of error; and they are more in danger to go out of the way, who are marching under the conduct of a guide, that it is an hundred to one will mislead them, than he that has not yet taken a step, and is likelier to be prevailed on to inquire after the right way. The last of the three sorts are in the worst condition of all; for if a man can be persuaded and fully assured of any thing for a truth, without having examined what is there that he may not embrace for truth, and if he has given himself up to believe a lie, what means is there left to recover one who can be assured without examining? To the other two this I crave leave to say, that as he that is ignorant is in the best state of the two, so he should pursue truth in a method suitable to that state, *i. e.* by inquiring directly into the nature of the thing itself, without minding the opinions of others, or troubling himself with their questions or disputes about it, but to see what he himself can, sincerely searching after truth, find out. He that proceeds upon other principles in his inquiry into any sciences, though he be resolved to examine them,

and judge of them freely, does yet at leaſt put himſelf on that ſide, and poſt himſelf in a party which he will not quit till he be beaten out; by which the mind is inſenſibly engaged to make what defence it can, and ſo is unawares biaſſed. I do not ſay but a man ſhould embrace ſome opinion when he has examined, elſe he examines to no purpoſe; but the ſureſt and ſafeſt way is to have no opinion at all till he has examined, and that without any the leaſt regard to the opinions or ſyſtems of other men about it. For example, were it my buſineſs to underſtand phyſic, would not the ſafer and readier way be to conſult nature herſelf, and inform myſelf in the hiſtory of diſeaſes and their cures, than, eſpouſing the principles of the dogmatiſts, methodiſts or chemiſts, engage in all the diſputes concerning either of thoſe ſyſtems, and ſuppoſe it to be true, till I have tried what they can ſay to beat me out of it? Or, ſuppoſing that Hippocrates, or any other book, infallibly contains the whole art of phyſic, would not the direct way be to ſtudy, read, and conſider that book, weigh and compare the parts of it to find the truth, rather than eſpouſe the doctrines of any party, who, though they acknowledge his authority, have already interpreted and wire-drawn all his text to their own ſenſe, the tincture thereof when I have imbibed, I am more in danger to miſunderſtand his true meaning, than if I had come to him with a mind unprepoſſeſſed by doctors and commentators of my ſect, whoſe reaſonings, interpretation and language which I have been uſed to, will of courſe make all chime that way, and make another, and perhaps the genuine meaning of the author ſeem harſh, ſtrained and uncouth to me? For words having naturally none of their own, carry that ſignification to the hearer, that he is uſed to put upon them, whatever be the ſenſe of him that uſes them. This, I think, is viſibly ſo; and if it be, he that begins to have any doubt of any of his tenets, which he received without examination, ought, as much as he can, to put himſelf wholly into this ſtate of igno-

rance, in reference to that question, and throwing wholly by all his former notions, and the opinions of others, examine with a perfect indifferency the question in its source, without any inclination to either side, or any regard to his or others unexamined opinions. This, I own, is no easy thing to do; but I am not inquiring the easy way to opinion, but the right way to truth, which they must follow who will deal fairly with their own understandings and their own souls.

§ 35. *Question.*

The indifferency that I here propose, will also enable them to state the question right which they are in doubt about, without which they can never come to a fair and clear decision of it.

§ 36. *Perseverance.*

Another fruit from this indifferency, and the considering things in themselves abstract from our own opinions and other mens notions and discourses on them, will be, that each man will pursue his thoughts in that method which will be most agreeable to the nature of the thing, and to his apprehension of what it suggests to him; in which he ought to proceed with regularity and constancy, until he come to a well grounded resolution wherein he may acquiesce. If it be objected that this will require every man to be a scholar, and quit all his other business, and betake himself wholly to study, I answer, I propose no more to any one than he has time for. Some mens state and condition requires no great extent of knowledge, the necessary provision for life swallows the greatest part of their time; but one man's want of leisure is no excuse for the oscitancy and ignorance of those who have time to spare; and every one has enough to get as much knowledge as is required and expected of him; and he that does not that, is in love with ignorance, and is accountable for it.

§ 37. *Presumption.*

The variety of distempers in mens minds is as great as of those in their bodies; some are epidemic, few

eſcape them, and every one too, if he would look into himſelf, would find ſome defect of his particular genius. There is ſcarce any one without ſome idioſyncraſy that he ſuffers by. This man preſumes upon his parts, that they will not fail him at time of need, and ſo thinks it ſuperfluous labour to make any proviſion before-hand. His underſtanding is to him like *Fortunatus's* purſe, which is always to furniſh him without ever putting any thing into it before-hand; and ſo he ſits ſtill ſatisfied, without endeavouring to ſtore his underſtanding with knowledge. It is the ſpontaneous product of the country, and what need of labour in tillage? Such men may ſpread their native riches before the ignorant, but they were beſt not come to ſtreſs and trial with the ſkilful. We are born ignorant of every thing: The ſuperfices of things that ſurround them, make impreſſions on the negligent, but nobody penetrates into the inſide without labour, attention and induſtry. Stones and timber grow of themſelves, but yet there is no uniform pile with ſymmetry and convenience to lodge in, without toil and pains. God has made the intellectual world harmonious and beautiful without us; but it will never come into our heads all at once, we muſt bring it home piece-meal, and there ſet it up by our own induſtry, or elſe we ſhall have nothing but darkneſs and a chaos within, whatever order and light there be in things without us.

§ 38. *Deſpondency.*

On the other ſide, there are others that depreſs their own minds, deſpond at the firſt difficulty, and conclude that the getting an inſight in any of the ſciences, or making any progreſs in knowledge farther than ſerves their ordinary buſineſs, is above their capacities. Theſe ſit ſtill, becauſe they think they have not legs to go, as the others I laſt mentioned do, becauſe they think they have wings to fly, and can ſoar on high when they pleaſe. To theſe latter one may for anſwer apply the proverb, *uſe legs and have legs.* Nobody knows what ſtrength of parts he has, till he has tried

them. And of the understanding one may most truly say, that its force is greater generally than it thinks, till it is put to it. *Vires que acquirit eundo.*

And therefore the proper remedy here is but to set the mind to work, and apply the thoughts vigorously to the business; for it holds in the struggles of the mind as in those of war, *Dum putant se vincere, vicere.* A persuasion that we shall overcome any difficulties that we meet with in the sciences, seldom fails to carry us through them. Nobody knows the strength of his mind, and the force of steady and regular application, till he has tried. This is certain, he that sets out upon weak legs, will not only go farther, but grow stronger too, than one, who, with a vigorous constitution, and firm limbs, only sits still.

Something of kin to this, men may observe in themselves, when the mind frights itself (as it often does) with any thing reflected on in gross, and transiently viewed confusedly, and at a distance. Things thus offered to the mind, carry the show of nothing but difficulty in them, and are thought to be wrapped up in impenetrable obscurity. But the truth is, these are nothing but spectres that the understanding raises to itself, to flatter its own laziness: It sees nothing distinctly in things remote, and in a huddle, and therefore concludes too faintly, that there is nothing more clear to be discovered in them. It is but to approach nearer, and that mist of our own raising that enveloped them will remove; and those that in that mist appeared hideous giants not to be grappled with, will be found to be of the ordinary and natural size and shape. Things, that in a remote and confused view seem very obscure, must be approached by gentle and regular steps, and what is most visible, easy and obvious in them, first considered. Reduce them into their distinct parts, and then in their due order bring all that should be known concerning every one of those parts into plain and simple questions; and then what was thought obscure, perplexed, and too hard for our weak parts, will lay itself open to the understanding

in a fair view, and let the mind into that which before it was awed with, and kept at a distance from, as wholly mysterious. I appeal to my reader's experience, whether this has never happened to him, especially when, busy on one thing, he has occasionally reflected on another. I ask him, whether he has never thus been scared with a sudden opinion of mighty difficulties, which yet have vanished, when he has seriously and methodically applied himself to the consideration of this seeming terrible subject; and there has been no other matter of astonishment left, but that he amused himself with so discouraging a prospect of his own raising, about a matter, which in the handling was found to have nothing in it more strange nor intricate than several other things which he had long since and with ease mastered. This experience would teach us how to deal with such bugbears another time, which should rather serve to excite our vigour, than enervate our industry: The surest way for a learner in this, as in all other cases, is not to advance by jumps and large strides; let that which he sets himself to learn next be indeed the next, *i. e.* as nearly conjoined with what he knows already as is possible; let it be distinct, but not remote from it; let it be new, and what he did not know before, that the understanding may advance; but let it be as little at once as may be, that its advances may be clear and sure. All the ground that it gets this way it will hold. This distinct gradual growth in knowledge is firm and sure; it carries its own light with it in every step of its progression, in an easy and orderly train, than which there is nothing of more use to the understanding. And though this perhaps may seem a very slow and lingering way to knowledge, yet I dare confidently affirm, that whoever will try it in himself, or any one he will teach, shall find the advances greater in this method, than they would in the same space of time have been in any other he could have taken. The greatest part of true knowledge lies in a distinct perception of things in themselves distinct: And some

men give more clear light and knowledge by the bare distinct stating of a question, than others by talking of it in gross whole hours together. In this, they who so state a question, do no more but separate and disentangle the parts of it one from another, and lay them, when so disentangled, in their due order. This often, without any thing more ado, resolves the doubt, and shows the mind where the truth lies. The agreement or disagreement of the ideas in question, when they are once separated and distinctly considered, is, in many cases, presently perceived, and thereby clear and lasting knowledge gained; whereas, things in gross taken up together, and so lying together in confusion, can produce in the mind but a confused, which in effect is no knowledge, or at least when it comes to be examined and made use of, will prove little better than none. I therefore take the liberty to repeat here again what I have said elsewhere, that in learning any thing, as little should be proposed to the mind at once as is possible, and that being understood and fully mastered, to proceed to the next adjoining part, yet unknown, simple, unperplexed proposition, belonging to the matter in hand, and tending to the clearing what is principally designed.

§ 39. *Analogy.*

Analogy is of great use to the mind in many cases, especially in natural philosophy; and that part of it chiefly, which consists in happy and successful experiments. But here we must take care that we keep ourselves within that wherein the analogy consists: For example, the acid oil of *vitriol* is found to be good in such a case, therefore the spirit of *nitre* or *vinegar* may be used in the like case. If the good effect of it be owing wholly to the acidity of it, the trial may be justified; but if there be something else besides the acidity in the oil of *vitriol*, which produces the good we desire in the case, we mistake that for analogy which is not, and suffer our understanding to be misguided by a wrong supposition of analogy, where there is none.

§ 40. *Association.*

THOUGH I have in the second book of my Essay concerning Human Understanding, treated of the association of ideas, yet having done it there historically, as giving a view of the understanding in this as well as its several other ways of operating, rather than designing there to inquire into the remedies that ought to be applied to it, it will, under this latter consideration, afford other matter of thought to those who have a mind to instruct themselves thoroughly in the right way of conducting their understandings; and that the rather, because this, if I mistake not, is as frequent a cause of mistake and error in us, as perhaps any thing else that can be named, and is a disease of the mind as hard to be cured as any; it being a very hard thing to convince any one that things are not so, and naturally so, as they constantly appear to him.

By this one easy and unheeded miscarriage of the understanding, sandy and loose foundations become infallible principles, and will not suffer themselves to be touched or questioned: Such unnatural connections become by custom as natural to the mind as sun and light: Fire and warmth go together, and so seem to carry with them as natural an evidence as self-evident truths themselves. And where then shall one, with hopes of success, begin the cure? Many men firmly embrace falsehood for truth, not only because they never thought otherwise, but also, because thus blinded as they have been from the beginning, they never could think otherwise; at least without a vigour of mind able to contest the empire of habit, and look into its own principles; a freedom which few men have the notion of in themselves, and fewer are allowed the practice of by others; it being the great art and business of the teachers and guides in most sects, to suppress, as much as they can, this fundamental duty which every man owes himself, and is the first steady step towards right and truth in the whole train of his actions and opinions. This would give one reason to suspect, that such teachers are conscious to themselves

of the falſehood or weakneſs of the tenets they profeſs, ſince they will not ſuffer the grounds whereon they are built to be examined; whereas thoſe who ſeek truth only, and deſire to own and propagate nothing elſe, freely expoſe their principles to the teſt, are pleaſed to have them examined, give men leave to reject them if they can; and if there be any thing weak and unſound in them, are willing to have it detected, that they themſelves, as well as others, may not lay any ſtreſs upon any received propoſition, beyond what the evidence of its truth will warrant and allow.

There is, I know, a great fault among all ſorts of people, of principling their children and ſcholars; which at laſt, when looked into, amounts to no more but making them imbibe their teacher's notions and tenets, by an implicit faith, and firmly to adhere to them, whether true or falſe. What colours may be given to this, or of what uſe it may be when practiſed upon the vulgar, deſtined to labour, and given up to the ſervice of their bellies, I will not here inquire; but as to the ingenious part of mankind, whoſe condition allows them leiſure and letters, and inquiry after truth, I can ſee no other right way of principling them, but to take heed, as much as may be, that in their tender years, ideas that have no natural coheſion come not to be united in their heads, and that this rule be often inculcated to them, to be their guide in the whole courſe of their lives and ſtudies, *viz.* That they never ſuffer any ideas to be joined in their underſtandings, in any other or ſtronger combination than what their own nature and correſpondence give them; and that they often examine thoſe that they find linked together in their minds, whether this aſſociation of ideas be from the viſible agreement that is in the ideas themſelves, or from the habitual and prevailing cuſtom of the mind joining them thus together in thinking.

This is for caution againſt this evil, before it be thoroughly riveted by c ſtom in the underſtanding;

but he that would cure it when habit has established it, must nicely observe the very quick and almost imperceptible motions of the mind in its habitual actions. What I have said in another place about the change of the ideas of sense into those of judgment, may be proof of this. Let any one not skilled in painting be told, when he sees bottles and tobacco-pipes, and other things so painted, as they are in some places shown, that he does not see protuberances, and you will not convince him but by the touch: He will not believe that, by an instantaneous legerdemain of his own thoughts, one idea is substituted for the other. How frequent instances may one meet with of this in the arguings of the learned, who not seldom in two ideas that they have been accustomed to join in their minds, substitute one for the other, and I am apt to think, often without perceiving it themselves? This, whilst they are under the deceit of it, makes them incapable of conviction, and they applaud themselves as zealous champions for truth, when indeed they are contending for error; and the confusion of two different ideas, which a customary connection of them in their minds hath made to them almost one, fills their head with false views, and their reasonings with false consequences.

§ 41. *Fallacies.*

RIGHT understanding consists in the discovery and adherence to truth, and that in the perception of the visible or probable agreement or disagreement of ideas, as they are affirmed and denied one of another: From whence it is evident, that the right use and conduct of the understanding, whose business is purely truth and nothing else, is, that the mind should be kept in a perfect indifferency, not inclining to either side, any farther than evidence settles it by knowledge, or the over-balance of probability gives it the turn of assent and belief; but yet it is very hard to meet with any discourse, wherein one may not perceive the author not only maintain (for that is reasonable and fit), but inclined and biassed to one side of the question, with

marks of a deſire that that ſhould be true. If it be aſked me, how authors who have ſuch a bias, and lean to it, may be diſcovered? I anſwer, by obſerving how in their writings or arguings they are often led by their inclinations to change the ideas of the queſtion, either by changing the terms, or by adding and joining others to them, whereby the ideas under conſideration are ſo varied, as to be more ſerviceable to their purpoſe, and to be thereby brought to an eaſier and nearer agreement, or more viſible and remoter diſagreement one with another. This is plain and direct ſophiſtry; but I am far from thinking, that wherever it is found, it is made uſe of with deſign to deceive and miſlead the readers. It is viſible that mens prejudices and inclinations by this way impoſe often upon themſelves; and their affection for truth, under their prepoſſeſſion in favour of one ſide, is the very thing that leads them from it. Inclination ſuggeſts and ſlides into their diſcourſe favourable terms, which introduce favourable ideas; till at laſt by this means that is concluded clear and evident, thus dreſſed up, which, taken in its native ſtate, by making uſe of none but the preciſe determined ideas, would find no admittance at all. The putting theſe gloſſes on what they affirm, theſe, as they are thought, handſome, eaſy and graceful explications of what they are diſcourſing on, is ſo much the character of what is called and eſteemed writing well, that it is very hard to think that authors will ever be perſuaded to leave what ſerves ſo well to propagate their opinions, and procure themſelves credit in the world, for a more jejune and dry way of writing, by keeping to the ſame terms preciſely annexed to the ſame ideas, a four and blunt ſtiffneſs, tolerable in mathematicians only, who force their way, and make truth prevail by irreſiſtible demonſtration.

But yet if authors cannot be prevailed with to quit the looſer, though more inſinuating ways of writing, if they will not think fit to keep cloſe to truth and inſtruction by unvaried terms, and plain unſophiſti-

cated arguments, yet it concerns readers not to be impoſed on by fallacies, and the prevailing ways of inſinuation. To do this, the ſureſt and moſt effectual remedy, is to fix in the mind the clear and diſtinct ideas of the queſtion ſtripped of words; and ſo likewiſe in the train of argumentation, to take up the author's ideas, neglecting his words, obſerving how they connect or ſeparate thoſe in the queſtion. He that does this will be able to caſt off all that is ſuperfluous; he will ſee what is pertinent, what coherent, what is direct to, what ſlides by, the queſtion. This will readily ſhow him all the foreign ideas in the diſcourſe, and where they were brought in; and though they perhaps dazzled the writer, yet he will perceive that they give no light nor ſtrength to his reaſonings.

This, though it be the ſhorteſt and eaſieſt way of reading books with profit, and keeping one's ſelf from being miſled by great names or plauſible diſcourſes, yet it being hard and tedious to thoſe who have not accuſtomed themſelves to it, it is not to be expected that every one (amongſt thoſe few who really purſue truth) ſhould this way guard his underſtanding from being impoſed on by the wilful, or at leaſt undeſigned ſophiſtry, which creeps into moſt of the books of argument. They that write againſt their conviction, or that, next to them, are reſolved to maintain the tenets of a party they are engaged in, cannot be ſuppoſed to reject any arms that may help to defend their cauſe, and therefore ſuch ſhould be read with the greateſt caution; and they who write for opinions they are ſincerely perſuaded of; and believe to be true, think they may ſo far allow themſelves to indulge their laudable affection to truth, as to permit their eſteem of it to give it the beſt colours, and ſet it off with the beſt expreſſions and dreſs they can, thereby to gain it the eaſieſt entrance into the minds of their readers, and fix it deepeſt there.

One of thoſe being the ſtate of mind we may juſtly ſuppoſe moſt writers to be in, it is fit their readers, who apply to them for inſtruction, ſhould not lay by

that caution which becomes a sincere pursuit of truth, and should make them always watchful against whatever might conceal or misrepresent it. If they have not the skill of representing to themselves the author's sense, by pure ideas separated from sounds, and thereby divested of the false lights and deceitful ornaments of speech, this yet they should do, they should keep the precise question steadily in their minds, carry it along with them through the whole discourse, and suffer not the least alteration in the terms, either by addition, subtraction, or substituting any other. This every one can do who has a mind to it; and he that has not a mind to it, it is plain makes his understanding only the warehouse of other mens lumber; I mean false and unconcluding reasoning, rather than a repository of truth for his own use, which will prove substantial, and stand him in stead, when he has occasion for it. And whether such an one deals fairly by his own mind, and conducts his own understanding right, I leave to his own understanding to judge.

§ 42. *Fundamental Verities.*

The mind of man being very narrow, and so slow in making acquaintance with things, and taking in new truths, that no one man is capable, in a much longer life than ours, to know all truths; it becomes our prudence, in our search after knowledge, to employ our thoughts about fundamental and material questions, carefully avoiding those that are trifling, and not suffering ourselves to be diverted from our main even purpose, by those that are merely incidental. How much of many young mens time is thrown away in purely logical inquiries, I need not mention. This is no better than if a man, who was to be a painter, should spend all his time in examining the threads of the several cloths he is to paint upon, and counting the hairs of each pencil and brush he intends to use in the laying on of his colours. Nay, it is much worse than for a young painter to spend his apprenticeship in such useless niceties; for he, at the end of all his pains to no purpose, finds that it is not painting, nor

any help to it, and so is really to no purpose: Whereas men designed for scholars have often their heads so filled and warmed with disputes on logical questions, that they take those airy useless notions for real and substantial knowledge, and think their understandings so well furnished with science, that they need not look any farther into the nature of things, or descend to the mechanical drudgery of experiment and inquiry. This is so obvious a mismanagement of the understanding, and that in the professed way to knowledge, that it could not be passed by; to which might be joined abundance of questions, and the way of handling them in the schools. What faults in particular of this kind, every man is, or may be guilty of, would be infinite to enumerate; it suffices to have shown, that superficial and slight discoveries and observations that contain nothing of moment in themselves, nor serve as clues to lead us into farther knowledge, should not be thought worth our searching after.

There are fundamental truths that lie at the bottom, the basis upon which a great many others rest, and in which they have their consistency. These are teeming truths, rich in store, with which they furnish the mind, and like the lights of heaven, are not only beautiful and entertaining in themselves, but give light and evidence to other things, that without them could not be seen or known. Such is that admirable discovery of Mr. Newton, that all bodies gravitate to one another, which may be counted as the basis of natural philosophy; which of what use it is to the understanding of the great frame of our solar system, he has to the astonishment of the learned world shown, and how much farther it would guide us in other things, if rightly pursued, is not yet known. Our Saviour's great rule, that *we should love our neighbour as ourselves*, is such a fundamental truth for the regulating human society, that, I think, by that alone one might without difficulty determine all the cases and doubts in social morality. These, and such as

these, are the truths we should endeavour to find out, and store our minds with; which leads me to another thing in the conduct of the understanding that is no less necessary, viz.

§ 43. *Bottoming.*

To accustom ourselves in any question proposed, to examine and find out upon what it bottoms. Most of the difficulties that come in our way, when well considered and traced, lead us to some proposition, which known to be true, clears the doubt, and gives an easy solution of the question, whilst topical and superficial arguments, of which there is store to be found on both sides, filling the head with variety of thoughts, and the mouth with copious discourse, serve only to amuse the understanding, and entertain company, without coming to the bottom of the question, the only place of rest and stability for an inquisitive mind, whose tendency is only to truth and knowledge.

For example, if it be demanded, whether the Grand Signior can lawfully take what he will from any of his people? This question cannot be resolved without coming to a certainty, whether all men are naturally equal; for upon that it turns, and that truth well settled in the understanding, and carried in the mind through the various debates concerning the various rights of men in society, will go a great way in putting an end to them, and showing on which side the truth is.

§ 44. *Transferring of Thoughts.*

THERE is scarce any thing more for the improvement of knowledge, for the ease of life, and the dispatch of business, than for a man to be able to dispose of his own thoughts; and there is scarce any thing harder in the whole conduct of the understanding than to get a full mastery over it. The mind, in a waking man, has always some object that it applies itself to; which, when we are lazy or unconcerned, we can easily change, and at pleasure transfer our thoughts to another, and from thence to a third, which has no relation to either of the former. Hence men forwardly

conclude, and frequently ſay, nothing is ſo free as thought; and it were well it were ſo; but the contrary will be found true in ſeveral inſtances; and there are many caſes wherein there is nothing more reſty and ungovernable than our thoughts; they will not be directed what objects to purſue, nor be taken off from thoſe they have once fixed on, but run away with a man in purſuit of thoſe ideas they have in view, let him do what he can.

I will not here mention again what I have above taken notice of, how hard it is to get the mind, narrowed by a cuſtom of thirty or forty years ſtanding to a ſcanty collection of obvious and common ideas, to enlarge itſelf to a more copious ſtock, and grow into an acquaintance with thoſe that would afford more abundant matter of uſeful contemplation; it is not of this I am here ſpeaking: The inconveniency I would here repreſent and find a remedy for, is the difficulty there is ſometimes to transfer our minds from one ſubject to another, in caſes where the ideas are equally familiar to us.

Matters that are recommended to our thoughts by any of our paſſions, take poſſeſſion of our minds with a kind of authority, and will not be kept out or diſlodged; but as if the paſſion that rules were for the time the ſheriff of the place, and came with all the *poſſe*, the underſtanding is ſeized and taken with the object it introduces, as if it had a legal right to be alone conſidered there. There is ſcarce any body, I think, of ſo calm a temper, who hath not ſome time found this tyranny on his underſtanding, and ſuffered under the inconvenience of it. Who is there almoſt, whoſe mind, at ſome time or other, love or anger, fear or grief, has not ſo faſtened to ſome clog, that it could not turn itſelf to any other object? I call it a clog, for it hangs upon the mind ſo as to hinder its vigour and activity in the purſuit of other contemplations, and advances itſelf little or not at all in the knowledge of the thing which it ſo cloſely hugs and conſtantly pores on. Men thus poſſeſſed, are ſometimes as if they

were so in the worst sense, and lay under the power of an enchantment. They see not what passes before their eyes; hear not the audible discourse of the company; and when by any strong application to them they are roused a little, they are like men brought to themselves from some remote region; whereas, in truth they come no farther than their secret cabinet within, where they have been wholly taken up with the puppet, which is for that time appointed for their entertainment. The shame that such dumps cause to well bred people, when it carries them away from the company where they should bear a part in the conversation, is a sufficient argument, that it is a fault in the conduct of our understanding not to have that power over it as to make use of it to those purposes, and on those occasions wherein we have need of its assistance. The mind should be always free and ready to turn itself to the variety of objects that occur, and allow them as much consideration as shall for that time be thought fit. To be engrossed so by one object, as not to be prevailed on to leave it for another that we judge fitter for our contemplation, is to make it of no use to us. Did this state of mind remain always so, every one would, without scruple, give it the name of perfect madness; and whilst it does last, at whatever intervals it returns, such a rotation of thoughts about the same object no more carries us forwards towards the attainment of knowledge, than getting upon a mill-horse, whilst he jogs on in his circular track, would carry a man a journey.

I grant something must be allowed to legitimate passions, and to natural inclinations. Every man, besides occasional affections, has beloved studies, and those the mind will more closely stick to; but yet it is best that it should be always at liberty, and under the free disposal of the man, to act how, and upon what he directs. This we should endeavour to obtain, unless we would be content with such a flaw in our understandings, that sometimes we should be as it were without it; for it is very little better than so in

cases where we cannot make use of it to those purposes we would, and which stand in present need of it.

But before fit remedies can be thought on for this disease, we must know the several causes of it, and thereby regulate the cure, if we will hope to labour with success.

One we have already instanced in, whereof all men that reflect have so general a knowledge, and so often an experience in themselves, that nobody doubts of it. A prevailing passion so pins down our thoughts to the object and concern of it, that a man passionately in love cannot bring himself to think of his ordinary affairs, or a kind mother, drooping under the loss of a child, is not able to bear a part as she was wont in the discourse of the company or conversation of her friends.

But though passion be the most obvious and general, yet it is not the only cause that binds up the understanding, and confines it for the time to one object, from which it will not be taken off.

Besides this, we may often find that the understanding, when it has a while employed itself upon a subject which either chance, or some slight accident offered to it, without the interest or recommendation of any passion, works itself into a warmth, and by degrees gets into a career, wherein, like a bowl down a hill, it increases its motion by going, and will not be stopped or diverted, though, when the heat is over, it sees all this earnest application was about a trifle not worth a thought, and all the pains employed about it lost labour.

There is a third sort, if I mistake not, yet lower than this; it is a sort of childishness, if I may so say, of the understanding, wherein, during the fit, it plays with, and dandles some insignificant puppet to no end, nor with any design at all, and yet cannot easily be got off from it. Thus some trivial sentence, or a scrap of poetry, will sometimes get into mens heads, and make such a chiming there, that there is no stilling of it; no peace to be obtained, nor attention to

any thing else, but this impertinent guest will take up the mind and possess the thoughts, in spite of all endeavours to get rid of it. Whether every one hath experimented in themselves this troublesome intrusion of some frisking ideas which thus importune the understanding, and hinder it from being better employed, I know not; but persons of very good parts, and those more than one, I have heard speak and complain of it themselves. The reason I have to make this doubt, is from what I have known of a case something of kin to this, though much odder, and that is of a sort of visions that some people have lying quiet, but perfectly awake, in the dark, or with their eyes shut. It is a great variety of faces, most commonly very odd ones, that appear to them in train one after another; so that having had just the sight of one, it immediately passes away to give place to another, that the same instant succeeds, and has as quick an exit as its leader, and so they march on in a constant succession; nor can any one of them by any endeavour be stopped or retained beyond the instant of its appearance, but is thrust out by its followers, which will have its turn. Concerning this fantastical phenomenon, I have talked with several people, whereof some have been perfectly acquainted with it, and others have been so wholly strangers to it, that they could hardly be brought to conceive or believe it. I knew a lady of excellent parts who had got past thirty, without having ever had the least notice of any such thing; she was so great a stranger to it, that when she heard me and another talking of it, could scarce forbear thinking we bantered her; but some time after drinking a large dose of dilute tea (as she was ordered by a physician) going to bed, she told us at next meeting, that she had now experimented what our discourse had much ado to persuade her of. She had seen a great variety of faces in a long train, succeeding one another, as we had described; they were all strangers and intruders, such as she had no acquaintance with before; nor sought after then, and as

they came of themselves, they went too; none of them stayed a moment, nor could be detained by all the endeavours she could use, but went on in their solemn procession, just appeared and then vanished. This odd phenomenon seems to have a mechanical cause, and to depend upon the matter and motion of the blood or animal spirits.

When the fancy is bound by passion, I know no way to set the mind free, and at liberty to prosecute what thoughts the man would make choice of, but to allay the present passion, or counterbalance it with another, which is an art to be got by study, and acquaintance with the passions.

Those who find themselves apt to be carried away with the spontaneous current of their own thoughts, not excited by any passion or interest, must be very wary and careful in all the instances of it to stop it, and never humour their minds in being thus triflingly busy. Men know the value of their corporal liberty, and therefore suffer not willingly fetters and chains to be put upon them. To have the mind captivated, is, for the time, certainly the greater evil of the two, and deserves our utmost care and endeavours to preserve the freedom of our better part. And in this case our pains will not be lost; striving and struggling will prevail, if we constantly, in all such occasion, make use of it. We must never indulge these trivial attentions of thought; as soon as we find the mind makes itself a business of nothing, we should immediately disturb and check it, introduce new and more serious considerations, and not leave till we have beaten it off from the pursuit it was upon. This, at first, if we have let the contrary practice grow to an habit, will perhaps be difficult; but constant endeavours will by degrees prevail, and at last make it easy. And when a man is pretty well advanced, and can command his mind off at pleasure from incidental and undesigned pursuits, it may not be amiss for him to go on farther, and make attempts upon meditations of greater moment, that at last he may have a full

power over his own mind, and be so fully master of his own thoughts, as to be able to transfer them from one subject to another, with the same ease that he can lay by any thing he has in his hand, and take something else that he has a mind to in the room of it. This liberty of mind is of great use both in business and study, and he that has got it will have no small advantage of ease and dispatch in all that is the chosen and useful employment of his understanding.

The third and last way which I mentioned the mind to be sometimes taken up with, I mean the chiming of some particular words or sentence in the memory, and, as it were, making a noise in the head, and the like, seldom happens but when the mind is lazy or very loosely and negligently employed. It were better indeed be without such impertinent and useless repetitions; any obvious idea, when it is roving causelessly at a venture, being of more use, and apter to suggest something worth consideration, than the insignificant buzz of purely empty sounds. But since the rousing of the mind, and setting the understanding on work with some degrees of vigour, does for the most part presently set it free from these idle companions, it may not be amiss, whenever we find ourselves troubled with them, to make use of so profitable a remedy that is always at hand.

END OF VOLUME THIRD.

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